DOCUMENT RESUME

ED 027 283 24 SP 002 424
By-Sowards, G. Wesley
A Model for the Preparation of Elementary School Teachers. Final Report.
Florida State Univ., Tallahassee.
Spons Agency-Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No-BR-8-9021
Pub Date Oct 68
Contract-OEC-0-8-089021-3308(010)
Note-172p.
Available from-Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (FS 5.258:58018, $2.00).
EDRS Price MF-$0.75 HC-$8.70
Descriptors-Admission Criteria, Behavioral Objectives, College School Cooperation, Computer Oriented Programs, Continuous Progress Plan, *Educational Specifications, *Elementary School Teachers, Field Experience Programs, Inservice Teacher Education, *Models, Performance Criteria, Preservice Education, Program Descriptions, Retraining, Specialization, Staff Utilization, Systems Approach, *Teacher Education, *Teacher Education Curriculum, Teacher Educators
Identifiers-Comprehensive Undergraduate and Inservice

The introduction to this program model presents an overview of the rationale, curriculum, and facilitating components of a program emphasizing achievement of stated performance criteria at individual progress rates. Sections on rationale present (1) inferences about elementary school teaching drawn from predictions for society and for education by 1976 and (2) a task analysis of teaching which isolates five essential teaching behaviors upon which the total program is based: formulating objectives, selecting and organizing content, instructional strategies, evaluation skills, and professional responsibilities. The major sections present curriculum specifications for (1) the underclass phase (general education and preprofessional studies); (2) the preservice phase (program components for each of the five essential teaching behaviors); (3) the inservice phase (field work and on-campus programs); and (4) a specialization dimension allowing for emphases on different age groups, academic subjects, and differentiated teaching functions. Sections on the facilitating components present specifications for (1) an admissions and screening system reflective of teaching performance criteria, (2) a computerized management control system, and (3) a faculty development and utilization program to provide retraining for new roles. ED 018 677 is a related document. (JS)

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BR8-9021
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OE-58018

Final Report
Project No. 8-9021
Contract No. OEC-0-8-089021-3308 (010)

A Model for the Preparation of Elementary School Teachers

G. Wesley Sowards
Project Manager

The Florida State University
Tallahassee, Florida

October 25, 1968

The research reported herein was performed pursuant to a contract with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

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HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

SP002424

Superintendent of Documents Catalog No. FS 5.258:58018

U.S. GOVERNMENT PRINTING OFFICE
WASHINGTON : 1968

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402 - Price $2

PREFACE

Considerable attention has been focused in recent years on the importance of the early period of formal education. Many have spoken out against the traditional pattern of schooling in which the smallest classes are reserved for graduate students while the youngest students are placed in the largest classes with the least well prepared teachers. It is now clear that the greatest educational impact can be made on the lives of young children, and that if adequate preparation is made in the elementary school, study in the junior and senior high school and college can become increasingly independent. But this approach to schooling demands highly skilled, dedicated teachers in the elementary school.

Many people, both in and out of professional education, believe that preparation programs for elementary teachers in most American colleges fall short of their purposes--and far short of the need. Apparently, this concern is shared by the United States Office of Education and has influenced the decision to embark upon a program to help support the development of model programs for the preparation of elementary teachers.

The College of Education of Florida State University has accepted the challenge to develop specifications for such a model program. While we have felt the need to redesign our elementary teacher education program for some time, the support of the Office of Education has advanced the schedule somewhat and has made it possible to do a more thorough job. We have been able to recruit a most able interdisciplinary group of people from throughout the University and beyond, and an outstanding feature of the present product is the flavor that this wide range of interest, experience, and talent contribute to the Model Program Project.

I am intensely proud of the document which the Florida State University College of Education has produced; and I am astounded that so much--so much good work--could have been done in so short a time. My gratitude is expressed to all of the people who helped in the preparation of this model program, here at Florida State University, in the United States Office of Education, and elsewhere. I have no doubt that the teacher education enterprise in America will be the better for it.

J. Stanley Marshall
Dean
College of Education
Florida State University

ACKNOWLEDGEMENT

This report represents the endeavors of large numbers of people from Florida State University and from agencies outside the University. If this report becomes, in fact, a model training program, it will be due in large measure to the dedication and unselfish efforts of these many people. A list of all personnel involved in the project is contained in Appendices A and B.

For the contributions to the project made by Dean J. Stanley Marshall and Assistant Dean William L. Maloy of the College of Education, I am most grateful. Their moral support and encouragement from the inception to the completion of the project were invaluable. Also, the financial resources which the College of Education provided permitted the involvement of more persons and more consultants than was initially envisioned.

The contributions of the supervisory and resource team personnel were of the highest order. W. Earl Armstrong, Mildred Swearingen, and Francis Vogel comprised the supervisory team and were unstinting in their understanding and cooperation. Professor Vogel served as director of the project from its initiation in April, 1968, until September 1, 1968, when he left Florida State University to assume another position. During those five months a great deal of the work of the project was accomplished under his most able leadership, and I want especially to recognize this. The ease with which I was able to assume the directorship of the project on September 1, 1968, was testimony to the job he had done. Professor Vogel's contribution was a vital one in the development of this report.

The resource team, composed of Jerald Coombs, Walter Dick, Robert Leigh, Charles Madsen, and Pauline Masterton, have labored long in making their many contributions. Coming from very different backgrounds, they made a maximum effort to bring to the project the best each had to offer and to work harmoniously in preparing the best possible report.

Norman Dodl joined the staff of the project in August, 1968, and made a most significant contribution to the development of this report in the crucial final phases of the work.

Many departments within the College of Education concerned with the preparation of elementary teachers have provided sections related to the selection and organization of content and entry skills and knowledge.

A particular word of appreciation goes to the many departments outside the College of Education who were willing to release resource personnel for active participation in this project. The Florida State Department of Education and the Leon County Public Schools likewise have contributed valuable resource assistance.

A large number of graduate students contributed in various ways to the project. Especially noteworthy was the assistance from Claire Duncan, Carol Otts, Marvalene Stiles, Anthony Jones, and Kenneth Stone.

Finally, this report would not now be completed were it not for the valiant efforts of the secretarial staff. The efforts of Nancy McKain, Charlotte Essig, and Jeff Trammell have made the difference between intention and accomplishment.

G. Wesley Sowards

Tallahassee, Florida

October 25, 1968

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CHAPTER I

OVERVIEW

I. Introduction

The preparation of elementary school teachers undoubtedly is one of the most critical tasks for our society in the decade ahead. The elementary school teacher is coming to be perceived less as a kind-hearted craftsman and more as a skillful professional person. Indications are that this shift in perception is essential in light of the growing demands and expectations placed on the elementary school, and thus on the elementary school teacher. The challenge is to find ways to prepare elementary school teachers who will be adequate to the task of teaching as it is coming to be. This model program represents the efforts of an interdisciplinary team to design a preparation program for elementary teachers which will meet the expectations of society and the demands of the school in 1978. It provides specifications that should be helpful to the designer of new, forward-looking teacher education programs.

The model program described in this report is characterized by a number of unique features:

1. Utilization of performance criteria.
   A series of experiences designed to enable trainees to meet stated performance criteria will be developed to replace formal courses.

2. Individual progress rates.
   Trainees will be permitted to move from one experience to the next when they have demonstrated the ability to satisfactorily meet performance criteria.

3. Immediate application of theory to practice.
   Trainees will have an opportunity to try out new theoretical learnings about teaching immediately through extensive use of small to large scale teaching activities.

4. A repertoire of technical skills.
   Trainees will be taught the technical skills of teaching and will be helped to integrate these into a total teaching performance.

5. Preparation extended into initial teaching years. An in-service phase, implemented jointly by the preparing institution and selected school systems, is an integral part of the total model.

6. Computerized management control system. A management control system utilizing a computer will be used to monitor individual trainees' progress and to make information available to staff and trainees as required.

7. Faculty development and utilization. The need for faculty retraining consistent with the demands of new roles in the model is recognized and provided for.

8. Selection of trainees for preparation. A direct effort is made to describe a selection system reflective of the performance criteria deemed necessary for teaching.

9. Acceptance of specialization. The desirability and necessity for specialization in elementary school teaching is accepted and planned for in the model.

Perhaps a comment concerning the idea of "specifications" would be appropriate here. Two meanings may be assigned to the word. On the one hand, it may be used to make a detailed description of requirements, dimensions, and materials necessary to fulfill a design. The builder uses the term in this sense in describing what materials will be used in fulfilling a blueprint.

On the other hand, the word "specifications" may be used to make the general more specific. This is an open-ended concept which provides for greater flexibility as the operation moves from the general to the more specific to the still more specific.

This idea is further illustrated by a painting in which the artist painted a mountain scene which shows a dim road leading into some low hills in the foreground. In the background he painted the mountains in such a way as to leave the impression that the dim road could lead in a zigzag fashion through a final pass over the mountain. The traveler, however, could not see all the way before he started. He could see the direction he was going and could get a clear view to the first turn.

To make the trip over the mountain the traveler would need to know the general direction he wished to travel, to have faith that the dim trail would lead in that direction, and to believe that at each turn in the trail it would be possible to see more clearly to the next turn.

This model parallels the metaphor depicted by this painting. The model is described in rather specific terms, but for two major reasons the specifics are inexact in many parts. First, the lack of time has made it impossible to detail every operation. Second, and more important, as the staff prepared these specifications, it was clear that research evidence on which to base a model program was incomplete at this time, taking away from the exactness with which specifications could be developed. The model points the direction in which preparation programs for elementary teachers should move. Hopefully, the specifications included show the way past one or two turns.

II. Rationale

The rationale for this model program is based upon:

1. predictions of what society and education will be like by 1978;
2. inferences about the nature of teaching and the role of the elementary school teacher by 1978; and
3. implications for the preparation of elementary school teachers.

At best the prediction of things to come is risky. Assuming the absence of any catastrophe which would block the forward thrust of our national progress, however, certain specific predictions relative to the preparation of elementary school teachers can be made.

Predictions for Society by 1978.

Our predictions for society by 1978 are:

1. The trend toward urbanization will be accelerated.
2. Traditional wisdom and values will be increasingly challenged and the voices of protest will demand public response.

3. The identity of the individual will merge increasingly with that of one or more groups.

4. The factors which tend to alienate young people as a group will continue to operate.

5. Political issues will increase in complexity so that sounder judgment and greater integrity will be required of both citizens and leaders.

6. A massive effort will be made by the federal government to alleviate social ills.

7. The influence and pervasiveness of multiple mass media will keep a broad range of issues before the public.

8. Science and technology will continue to be dominant forces in our lives, creating problems and offering solutions to problems over a wide front.

9. The international character of life will influence social, political and economic affairs in a striking way.

Predictions for Education by 1978

Our predictions for education by 1978 are:

1. Society will make increased demands upon schools and colleges to fashion programs to meet the needs of all of its people.

2. The fact that education will be increasingly society-oriented will aggravate the tension between educators and the general public.

3. Education will meet society's demands through increasing attention to the individual.

4. Each major level of organized education will see itself as capable of managing its own program planning, and teachers at each level will seek autonomy over a greater range of matters important to them than ever before.

5. Curriculum developers in elementary and secondary schools will try to overcome extreme separate-subject-centeredness and move toward a more interdisciplinary design.

6. Schools, especially in the inner city, will have to relate more directly to the total environment.

7. Emphasis will be placed on relevance in learning.

Inferences about Elementary School Teaching by 1978

Our inferences about elementary school teaching by 1978 are:

1. Only broadly educated persons of high ability will be able to make the difficult decisions required of elementary school teachers.

2. The emerging role of the elementary school teacher will require depth of study in at least one academic area and competence in employing a wide range of teaching strategies.

3. The elementary school teacher will have to be able to work as an effective team member with other professional and para-professional personnel.

4. Initial training requirements will call for a pre-service--in-service continuum of experiences.

5. The elementary school teacher will need to view the elementary school as an institution in almost continuous transition and come to expect and cope with educational change accordingly.

Task Analysis of Teaching

The decision to use a systems approach in determining the specifications for this model training program required a more careful and detailed analysis of the component behaviors in teaching than these predictions and inferences provided. Therefore, a task analysis of teaching as forecast for 1978 was undertaken. Four essential teacher behaviors resulted from this:

1. The teacher will plan for instruction by formulating objectives in terms of behavior which is observable and measurable.

2. The teacher will select and organize content to be learned in a manner consistent with both the logic of the content itself and the psychological demands of the learner.

3. The teacher will employ appropriate strategies for the attainment of desired behavioral objectives.

4. The teacher will evaluate instructional outcomes in terms of behavioral changes.

These behaviors are clearly interdependent. As shown in Figure 1, they are directly concerned with instructional-curricular functions. Still, only the behaviors which have to do with employing teaching strategies specify interaction with the learner. Students can be active in the formulation of objectives, in content selection, and in planning some and undergoing nearly all kinds of evaluative activities, but the teacher behaviors required for competency in dealing with objectives, content, and evaluation are primarily analytical skills rather than interactive ones. The component behaviors in strategy tasks involve interacting with pupils as they deal with content and material which will produce and reinforce appropriate learning behavior.

The task analysis engaged in did yield a fifth category of teacher behavior, but of a somewhat different order than the four already mentioned. This fifth dimension of teacher behavior is stated as follows:

5. The teacher will demonstrate the competence and willingness to accept professional responsibilities and to serve as a professional leader.

This behavior, too, is attended to in the model program. It is felt that this dimension of teaching behavior will be of the utmost importance by 1978. Ways of achieving it are therefore specified in this report.

Figure 2 shows a graphic presentation of the way in which the model program staff moved from predictions about society and education in 1978, to inferences about the nature of teaching and the role of the elementary teacher in 1978, to implications for his preparation, and to the specifications presented in this model program.

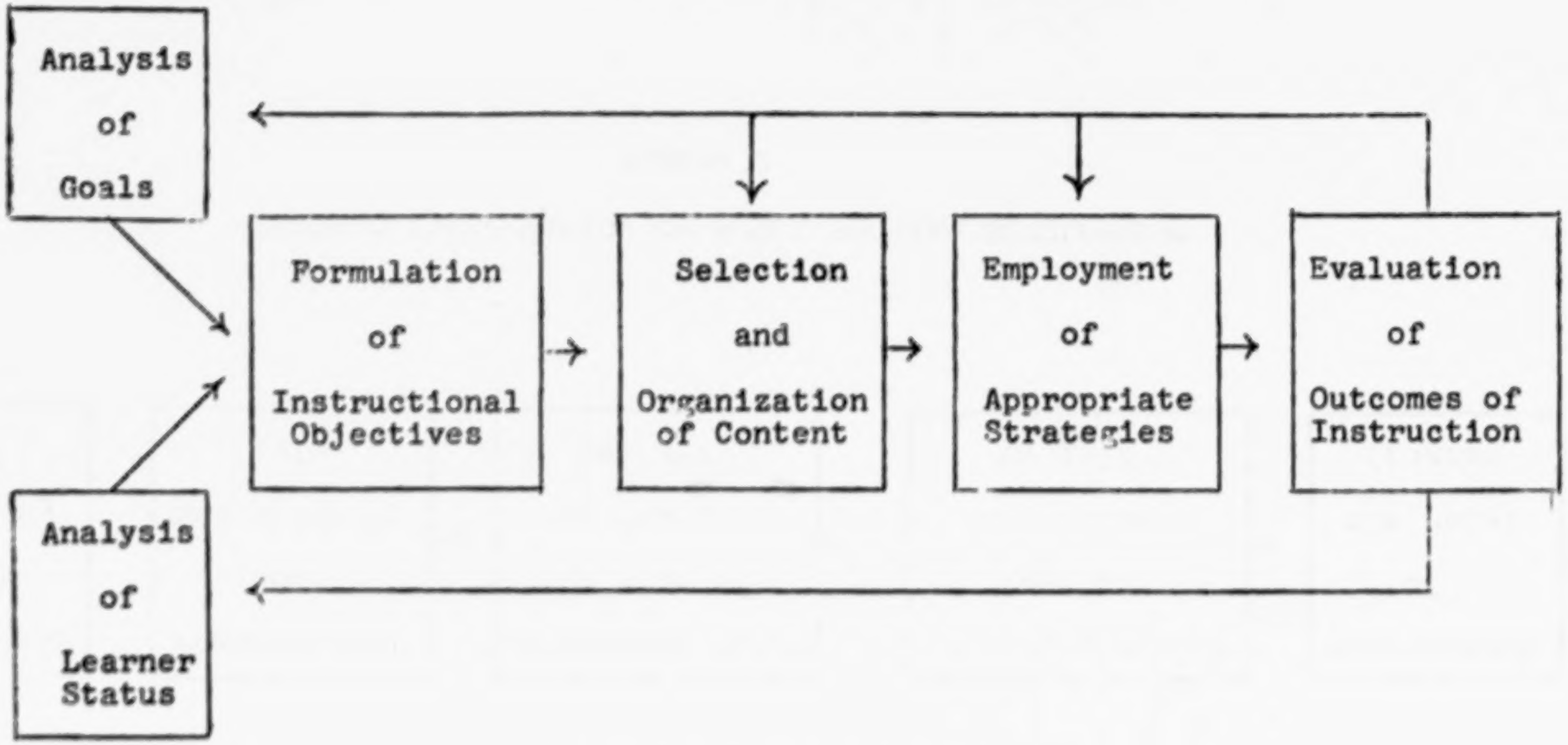
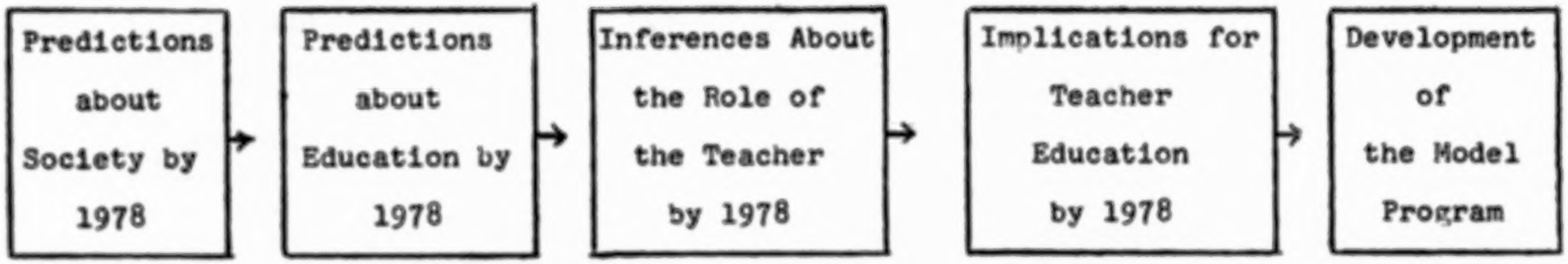

Analysis of Goals
Analysis of Learner Status
Formulation of Instructional Objectives
Selection and Organization of Content
Employment of Appropriate Strategies
Evaluation of Outcomes of Instruction

DIAGRAM OF THE TEACHING TASKS

Figure 1


Predictions about Society by 1978
Predictions about Education by 1978
Inferences About the Role of the Teacher by 1978
Implications for Teacher Education by 1978
Development of the Model Program

GRAPHIC PRESENTATION OF MODEL PROGRAM DEVELOPMENT

Figure 2

III. The Curriculum

A three phased program, consisting of an underclass phase, a pre-service phase, and an in-service phase, was designed to develop the behaviors outlined above. (See Figure 3.)

Underclass Phase

The underclass phase of the program, which represents what would normally be the first two years of college, concentrates mainly on general education.[1] The stand has been taken that the elementary teacher by 1978 must be a broadly educated person. The underclass phase of the program is perceived as making a major contribution to that requirement for the trainees.[2] The underclass phase of the model will also incorporate pre-professional studies to include work in the behavioral science, and an early awareness-involvement program designed to inform prospective teacher candidates about the role, demands, and rewards of teaching, and to provide them with a basis for making a commitment to the preparation program and to service in the profession.

Pre-Service Phase

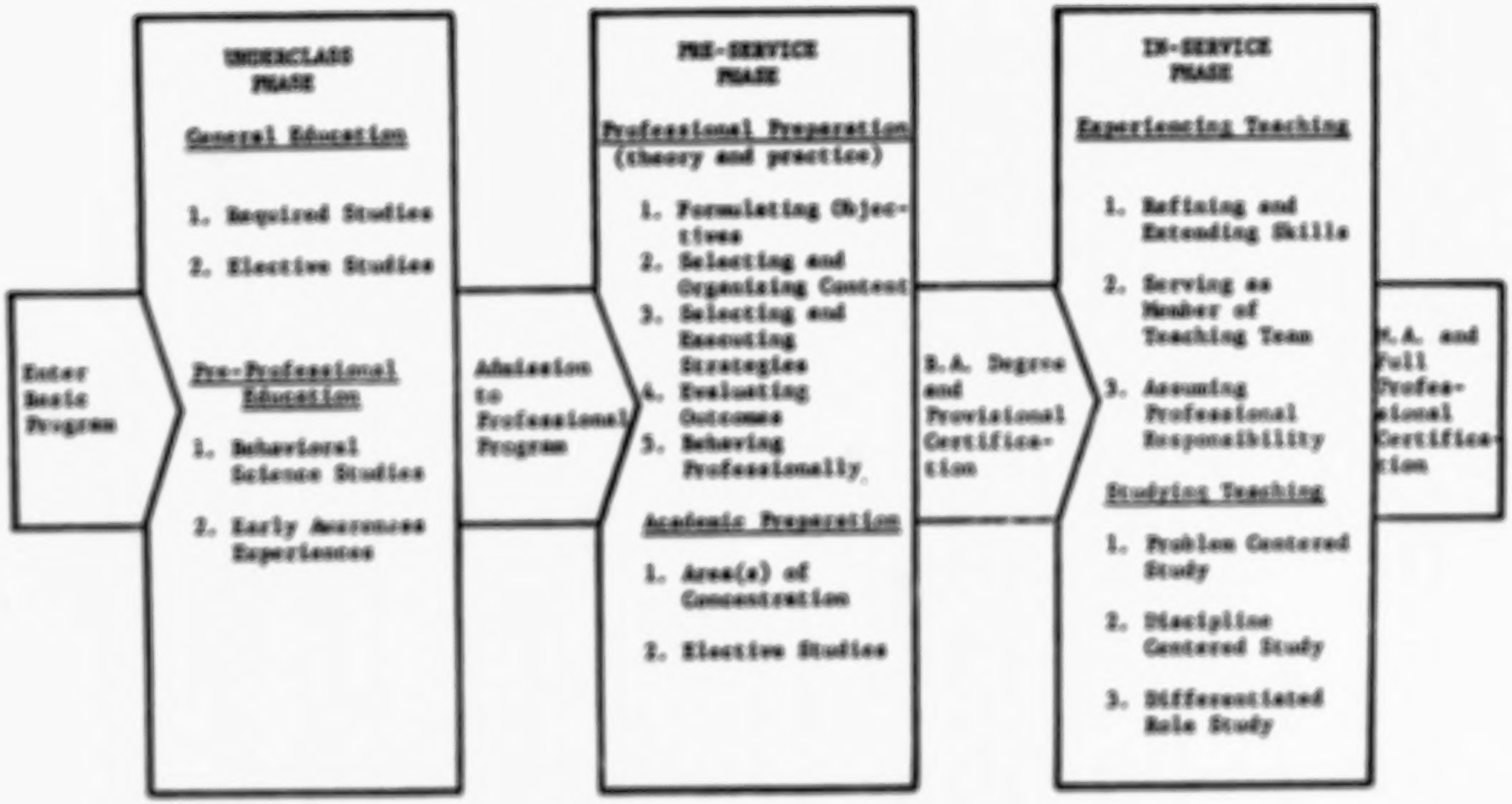
The pre-service phase of the program begins after admission to the program, usually the beginning of the junior year, and continues through the completion of the bachelor's degree and the granting of provisional certification. The amount of time actually spent in the pre-service phase will vary from individual to individual. Emphasis during this phase will be on professional preparation; i.e., undergoing experiences designed specifically to prepare the trainees to fulfill the professional duties of teachers. Candidates will also engage in study to develop an area of academic concentration[3] and to pursue elective interests.

---

[1] General Education: studies in history, the humanities, the natural sciences, and the social sciences.

[2] Trainee: teacher candidate; college student enrolled in the pre-service or in-service phases of the program.

[3] Area of Concentration: academic area, as art, mathematics, natural science, social science.


Enter Basic Program
UNDERCLASS PHASE
General Education
1. Required Studies
2. Elective Studies
Pre-Professional Education
1. Behavioral Science Studies
2. Early Awareness Experiences
Admission to Professional Program
PRE-SERVICE PHASE
Professional Preparation (theory and practice)
1. Formulating Objectives
2. Selecting and Organizing Content
3. Selecting and Executing Strategies
4. Evaluating Outcomes
5. Behaving Professionally
Academic Preparation
1. Area(s) of Concentration
2. Elective Studies
B.A. Degree and Provisional Certification
IN-SERVICE PHASE
Experiencing Teaching
1. Refining and Extending Skills
2. Serving as Member of Teaching Team
3. Assuming Professional Responsibility
Studying Teaching
1. Problem Centered Study
2. Discipline Centered Study
3. Differentiated Role Study
M.A. and Full Professional Certification

A THREE PHASE PLAN FOR PREPARING ELEMENTARY TEACHERS

Figure 3

Built on the five teaching behaviors identified earlier, success in the pre-service phase is dependent upon the ability of the trainee to state objectives, select and organize content, utilize appropriate strategies, utilize evaluation skills and techniques, and demonstrate a willingness to provide leadership and professional responsibilities consistent with stated performance criteria.

In-Service Phase

The in-service phase of the program will begin with the awarding of the bachelor's degree and extend through two school years and three summers, culminating in the master's degree and full professional certification. During the academic years, the trainees will be employed as teachers, with some time set aside for the study of problems encountered in the teaching environment. Three summers will be spent on campus. The goals to be achieved in these summer sessions are: to extend systematically the trainees' competence in areas such as the psychological, sociological, and philosophical foundations of education; to help them to become more aware of and competent with the several dimensions of professional leadership responsibilities; and to enable them to pursue an appropriate area of specialization from the point of view of role differentiation. A part of each summer, and especially the first one, will be devoted to preparation for the upcoming teaching assignment in the schools.

It is planned that the university will assume a major role along with the public school system for planning and executing the in-service phase of the program during the two academic years the trainees are teaching. The university will not attempt to dictate the nature of the program, but will rather enter into a cooperative arrangement with the local school system for planning a program appropriate to the needs of the local school system which at the same time will be consistent with the goals of the model program. The university will commit itself to provide an appropriate share of human and financial resources for this part of the in-service phase.

Specialization

There is a specialization dimension in the model program, too. Overall, the program is designed to prepare teachers to work with pupils who range in age from three through about thirteen. There will also be opportunities for some work in all of the subject matter areas normally encompassed in the elementary school curriculum. Thus, all teacher candidates[5] will be helped to develop a common general background relative to content areas and understanding of elementary school age pupils. However, to provide the level of competency which will be needed by the teacher in 1978, three kinds of specialization will be provided for in the program. Each teacher candidate is expected to make a decision about these specializations.

First, trainees will select the age group with which they want especially to work. Since the emphasis in the program will be on the continuity of programs covering the complete range of ages, there will not be rigid, artificial divisions of the age groups. Two broadly defined age groups will be used: Pupils ages three to eight or nine (or early childhood), and pupils ages eight or nine to about thirteen (or later childhood). The choice made will be reflected in the nature of the training experiences provided for the candidate.

The second area of choice for specialization will center on an academic subject. All trainees will have a reasonable knowledge of each of the subject matter areas included in the elementary curriculum, but they will be expected to select at least one area for special study. It is expected that this area will be an extension of study begun in the underclass phase.

The third area of specialization will be concerned with differentiated teaching functions. The equivalent of one summer during the in-service phase will be devoted to role differentiation. Care will be taken to ensure that each trainee has a clear understanding of such current and emerging roles in education, as programmer, media specialists, and content area resource teacher.

This program will have enough flexibility to permit other specialist variations. For instance, a trainee could make a specialty of becoming a master teacher in an inner-city school, or a master teacher with exceptionally able children, and the like.

---

[5] Teacher candidate: trainee; college student enrolled in the pre-service or in-service phase of the program.

IV. Facilitating Components

Admissions and Screening

The admission and screening procedures of the model program were designed to select for the program those candidates who show evidence of capability to meet performance criteria as stated and who demonstrate a commitment to complete the program and to remain in teaching. Research evidence relative to predicting teacher effectiveness, success, and perseverance rate to date has been inconclusive. Therefore, it is seen as necessary in this model program to establish a data bank on which to base studies to improve predictions in the future.

Immediately, upon being admitted to the program, the teacher candidates will be assessed against certain pre-determined entry skills and knowledges in each of the areas included in the elementary school curriculum. Provision will be made to enable trainees with deficiencies to engage in study to overcome them while beginning the pre-service phase. Screening from the program will be done on the basis of inability to meet stated performance criteria. Every effort will be made to provide feedback to trainees on the quality of their performance on a regular basis so that they may judge for themselves the nature of the progress they are making.

Computerized Management Control System

A computerized management control system has been developed for the program to serve three major purposes. First, each individual trainee's progress will be monitored and data relative to progress and to the probability of completing the program successfully will be made available to the trainee and his counseling professor as needed. Second, summary data on the progress of all trainees will be made available to the project managers on a regular basis. This information will include projections of the points to which trainees will have progressed in the near future in order that the project managers can anticipate necessary personnel, space, and material resources. The third major use will be to provide data for researchers interested in a variety of variables having to do with success in training and success in actual teaching.

A two-system concept will characterize the CMCS program. A real-time management system will be developed utilizing a very large PERT network which will provide information to the trainee and his counseling professor. A Batch-mode retrieval system will provide the trainee's background information and detailed trainee performance information for the program managers and researchers.

The program will adapt an existing Batch-mode PERT program to time sharing, real-time interrogation. The hardware needed includes a central processing unit, a transmitting control device, a peripheral processor, and remote terminals, as well as the usual printers, card punch, and similar equipment.

Staffing

A major characteristic of the model program is its design for staffing. Many of the roles required in this program are new to professional teacher education. Therefore, the retraining of faculty becomes a major problem. In addition to the problem of staff development, the program directs itself to new staff requirements, staff organization, and staff utilization arrangements.

A variety of new roles will emerge within a college of education as traditional courses are abandoned and experiences oriented to performance criteria replace them. Three major types of assignments have been identified for faculty in the professional component: administration-student personnel; teaching-counseling; and selecting and producing materials.

It is expected that most faculty members will, during the course of an academic year, work in two types of assignments. Typically, a faculty member will serve as a teacher-counselor and, either an administrator-student personnel worker or a selector-producer of materials. The team concept will be utilized for much of the operation by grouping faculty members from various backgrounds and with unique strengths to take responsibility for certain areas of the training program.

The proper organization of the staff will require the support of the university administration. It is likely that at least some of the faculty will be on joint appointment either between some departments of a college of arts and sciences and the teacher education program, or between some department within a college of education and the program.

CHAPTER II

PREDICTIONS FOR THE DECADE AHEAD

I. Introduction

To develop a rationale and an undergirding philosophy for the model and to serve as the basis for projecting training requirements for elementary teachers, position papers concerned with predicting what society and education will be like by 1978 were written. This chapter is developed from those position papers.

In the early part of this century, the normal school met the standards of the time by preparing teachers who provided a quality of education commensurate with the expectations of society. Few of these teacher preparation programs of yesteryear would be acceptable today, however. Societal expectations and educational standards have changed tremendously. Since the tempo of change is increasing, it seems reasonable to assume that social and educational conditions in 1978 will differ substantially from those of 1968, and that teacher education programs will have to change accordingly.

Teacher education, to be viable for 1978, should be designed to meet the conditions most likely to exist at that time. What these conditions will be, no one can know for sure (Bell,1967). However, a set of reasoned predictions, derived from foreseeable social and educational developments, should form the basis upon which any program is predicated. These can provide at least minimal insurance against obsolescence at the start.

Any projection, of course, is subject to the contingencies of an extrapolation of future events from those of the present, including the very strong likelihood that in periods such as those of the present and next decade, not all change will be linear in nature. Attention has been called to the fact that change may differ in kind as well as in degree, a factor of importance in social planning.

Whatever the dangers of these predictive techniques (Shane & Shane, 1968), it is clear that emerging conditions in society as a whole, as well as in the field of education, carry direct implications for the preparation of teachers who are to begin their service ten years from now.

II. Societal Projections

The Trend Toward Urbanization Will be Accelerated (Michael, 1966; Kahn & Wiener, 1967). By 1978, the clusters of population will be even more clearly defined, and the problems of the city will be the problems of most people (Yee,1968). The advantages of urban life, such as the availability of more and better hospitals, libraries, drama, music, transportation, and shopping will be, for many people, overbalanced by some of the more gross disadvantages. There are also more subtle psycho-social concomitants which are associated with the move to big cities. The decrease in a person's life space, the increasingly depersonalized human relations, the remoteness of the sources of authority and channels of redress, the feelings of restlessness which can lead either to apathy or rebellion--all of these can affect individuals.

Traditional Wisdom and Values Will be Increasingly Challenged and the Voices of Protest Will Demand Public Response (Haskew, 1967). Until recently, the melting pot has been able to absorb or to transform those ideals and values foreign to the dominant culture of the white Anglo-Saxon middle class Protestants. The melting pot for various reasons has now become ineffective in maintaining a unified culture.

Sociologists now recognize ours as a multi-culture society. The voices of those who are guided in their behavior by other ideas and values will have to be considered (Cottrell, 1967). The whole civil rights movement has been both a reflection of and an encouragement to the questioning of traditional values and the challenging of social and political power structures.

The educational level attained by young adults, and the emphasis in education on "searching" and "researching" rather than on "inculcating" has no doubt contributed to the questioning attitude of the upcoming generations. Not only young adults, but ethnic minorities, the poor, and others who were formerly either voiceless, largely ignored or apathetic will continue to call attention to matters of social and individual conscience. Present attempts to involve the protestors in positive ways in the solution of problems gives promise of a more vital and democratic method of determining ends and means. It is very likely that the direction which our society will take will be determined as much by the protestors as by the leaders of the power structure.

The Identity of the Individual Will Merge Increasingly With That of One or More Groups. Several current trends, which show strong signs of continuing with growing force, will contribute to the increasing anonymity of the individual. The first has to do with occupational identity. Already more than 90 per cent of the more than 80,000,000 now employed work for somebody else. Individuals can not isolate themselves in either their work or their housing.

At least two problems flow out of this phenomenon. First, if nearly all are to work within the framework of some organization, they must be willing and able to give and take. On the one hand, initiative will be desired but, in the broader sense, conformity will be required. The sense of dependence will be repulsive to some people; it is difficult to become self-actualized from fragmented other-oriented work. Second, motivation for work other than for the dollars it will bring becomes vague. In the complexities of our economy the individual who works for somebody else has difficulty seeing how his efforts relate to the general welfare. He is seldom responsible for the whole of anything and usually what he does is for the profit of the stockholders.

Another trend deals with the increasing fragmentation of community life, which has extended itself so far that the identification of an individual is as likely to be with groups having their origins outside a given community as with people and interests of the local community (Ellna & Englemen, 1965). Almost every group to which an individual belongs will have a national headquarters where major policies and programs will be determined. In a society so interwoven with special groups, the public school will be the major agency left which will be concerned with the welfare of all.

Still another phenomenon is the growing practice of dealing in the name of an organization rather than in one's own name. And with the shift from a man-to-man basis of dealing to a man-to-organization basis comes a shift in the basis upon which each can hold the other responsible. Being covered by such anonymity puts the character of the individual to a much more rigorous test than if his actions were open to public scrutiny. The temptation to act in self-interest is increased by anonymity.

The same principle applies to other aspects of American life; the government, the church, the school board, the civic club, the Chamber of Commerce, and the labor union. It is difficult to hold an individual responsible for his behavior when he acts through an organization. Only a man of strong integrity can behave honorably in a society characterized by anonymity.

The Factors Which Tend to Alienate Young People as a Group Will Continue to Operate (Miller, 1967). While younger parenthood may tend to narrow the gap between generations, the specialization of the father's occupation and the trend toward more women in employment are even stronger factors which will further widen the generation gap. As this happens, children and youth will become further separated from the world in which their parents live and move. As a consequence, youth will tend to turn more to peer groups for values, status, and identification.

Another very strong alienating factor is that young people are consuming more and producing less. Since the turn of the present century, developments in society such as the institution of child labor laws, which removed children from the sweatshops and put them in the classroom, have tended to isolate children and youth from work experience, except for a few household chores now and then. As related to education, two negative results are apparent. First, children and youth are dependent upon their parents for all of their economic needs. This feeling of dependence is a source of discomfort which can easily move to sensitivity and resentment. The revolt against parents expands to include teachers in the schools. It would appear that many of the educational problems of the present and foreseeable future are rooted in the reaction of youth to this state of dependence (Shane, 1967).

Second, schools have an increasingly difficult task in building a bridge between classroom and reality for children who are caught up in isolation from the work-a-day world. This problem applies with double force to children in the inner city whose life space is limited to a few city blocks of run-down buildings and dirty alleys. Such conditions are becoming more widespread.

Science and Technology Will Continue to Be Dominant Forces in Society in 1978, Offering Solutions to Many Problems While Creating Others. Undoubtedly, society in the year 1978 will be characterized by its scientific-technological orientation. The research laboratory will continue to be a frontier in America. There will be by 1978 an even greater awareness in society of our basic commitment to science as a process of inquiry and discovery and of our dependence on science as a force for improvement in almost every aspect of living. Engineers will be no less ingenious and inventive in applying, through technology, the fruits of science to our lives. Some argue that we are even now merely on the threshold of the technological age.

The International Character of Life Will Continue to Grow and Will Influence Social, Political, and Economic Affairs in a Decisive Way. The international realities of the world will be no less pressing on our lives by 1978. While all hope for an accelerated rate of progress is finding a basis for a lasting peace in our time, there is little to suggest that this task will be completed by 1978. Undoubtedly, the free world and the communist world will continue to search for acceptable ways to accomodate to each other. The less-well-developed nations will continue to press for ways to meet the rising level of expectations of their people. Business and industry will have become by 1978 even more an international matter and economic interdependence even more a reality of the times. International travel will be more convenient and less costly, and trips outside the United States will be a common experience for many of our people. Just as many have come to realize the close tie between the realization of individual goals and national purposes, so will they be more sensitive to the relationship between both of these and international developments.

Political Issues Will Increase in Complexity So That Sounder Judgment and Greater Integrity Will Be Required of Both Citizens and Leaders. The delicate balance of power among nations, the far-reaching effects of legislative actions, the staggering influence of the mass media, the largely anonymous character of urban life--all of these and others are just a part of the constellation of problems with which our society must deal. Such issues will require a level of judgment and responsibility beyond what would be expected from persons with a narrow and specialized education, or an education designed mainly to help each individual share in the good life, and contribute to it largely through his occupation.

A Massive Effort Will be Made by the Federal Government to Alleviate Some of the Social Ills. The elimination of poverty, unemployment, exploitation in housing, gross usury and unequal justice before the law are part of a great national purpose, and will continue to be targets of various federally instigated programs (Yee, 1968).

It has become increasingly clear that the responsibility for social inequities cannot easily be assigned. Too, with increased mobility, the effects spread beyond state borders. The federal government, with its vast resources and broad base of responsibility, has stepped into areas which have traditionally been determined locally, but which for many reasons have become matters of national concern.

One such area is education. If the schools are to assist in the national effort and use federal support wisely, then educational agencies, from universities through local school systems to individual schools and teachers, must be willing to re-evaluate traditional practices, seek innovative solutions, and accept changes which show good promise.

The Influence and Pervasiveness of Multiple Mass Media Will Keep a Broad Range of Issues Before the Public (Pierce, 1967; Miller, 1967). There is an increasing trend toward competition among television, radio, the daily press, and other published media to provide the "inside story," and a growing tradition of allowing several sides (including both fact and opinion) of controversial issues to be aired for public scrutiny. This condition will tend to make for greater objectivity in news reporting, a public which is better informed, and the diminished possibility of controlled or managed news. There is, of course, also a trend toward consolidation of newspapers to the degree that many large communities are under the influence of only one editorial policy. Magazines, journals, and newspapers with regional or national coverage help offset this trend. Discriminating listening and reading on the part of the public will be necessary. The improvement of telephones, television, and the wide circulation of newspapers and magazines all work to reduce sectional differences. Such forces tend to dislodge power structures in local communities, thus making it possible for new ideas to take root.

In concluding this set of predictions about society, the concept that not all change is linear in nature must be stressed. Some conditions not now foreseeable may in ten years be in effect. These could require important adaptations in education and teacher education.

III. Educational Projections

Society by 1978 Will Make Increased Demands Upon Schools and Colleges to Fashion Programs to Meet the Needs of Its People. Society will expect schools to serve at least two kinds of needs: those relating to occupations in the world of work, and those relating to the requirements of responsible citizenship.

Changes in technology have made specialists of more workers. In turn, specialization has forced movement to cities where specialized employment is to be had. Combined, the two forces make for an interdependent society which rests on the necessity for each person to learn to do something well. Society needs to have each person produce some useful goods or services for at least two reasons. First, useful work is the best anchor, the best stabilizer a person can have. Society knows that those who are employed in the successful pursuit of useful occupations are not likely to create serious disturbances. Second, the higher the average level of production the higher will be the standard of living which society will enjoy.

But society also increasingly needs people who help to hold it together. Being occupationally efficient and productive is not enough. There are controls that must be exercised over those who would use their occupations to further their own ends at the expense of society; there are needs not related to occupations which citizens have; and there are relations with other nations which transcend the interests and ability of any individual or group to handle. Slowly but clearly, society is coming to see that education to meet such needs must be planned to avoid happenstance.

Society will probably be more sensitive to the need for citizenship education in 1978. The trend mentioned toward occupational specialization, the challenges of the status quo in all aspects of society by individuals and minorities, and the general emphasis on human rights will increase the interest of society in developing contravening educational influences. Individual motivation for citizenship education will generally be low; therefore, the schools and colleges will have to require each student to divide his time between those activities that would promote his own interests and those that would equip him to make important decisions relating to the general welfare.

The Fact That Education Will Be Increasingly Society-Oriented Will Aggravate the Tension Between Educators and the General Public. The political system can properly demand of the educational system that the schools prepare people to do certain jobs and to make certain kinds of decisions. The difficulty is encountered in deciding where the line is between defining the job of education and determining the program and process for doing it. The educational system will demand from the political system the conditions necessary for the search for truth in the interest of the general welfare. It will struggle to resist the pressures from vested interests which would threaten academic freedom and diminish the importance of protecting the uniqueness of the individual. The further segmentation of society into interest groups and the trend toward anonymity in group action point to an ever present struggle to preserve conditions that will make it possible for education to serve the needs of the whole of society. In periods of calm, it will be necessary for policies and procedures to be established which will assure adequate protection for the schools when turmoil comes.

Education Will Meet Society's Demands Through Increasing Attention to the Individual. Seen in broad terms, there need be no conflict between meeting the demands of society and meeting the needs of the individual. Society will dictate the "what for" and the schools and colleges will determine by "what programs" and through "what process" (Lee, 1966). As pupils move through the schools, they will be conscious of the responsibility which society is placing on them to prepare them to help in meeting society's needs. The process through which they will be prepared for their societal role, however, will become more individualized.

Although the program and the process of education will probably be considerably closer to being individual-oriented than at present, to expect immediate individualization of instruction is to overlook powerful forces that block such developments. One such force is expense. Education is already expensive, but to become equipped for individualization of teaching by providing the hardware, the software, the buildings, and the qualified personnel would entail an incalculable expense. It is doubtful whether by 1978 the power structure will be convinced that the increased effectiveness of complete individualization can be justified economically. It is also not clear how 2,000,000 teachers can within a decade be brought from their present level of educational skill to a level necessary for complete individualization of instruction. Among other obstacles is the time required to develop a working relationship between industrialists and educators in order to gain acceptance and prevent misuse of mechanical learning devices.

The rapid development of technology, including systems analysis, and educational hardware and software, have placed at the disposal of educators the instrumentalities for giving more attention to the individual (Suppes, 1968). This does not mean that schools will be teaching individual pupils to separate themselves from society. Instead, it means that the schools will give more attention to the individual as he is being prepared to take his place in society.

Each Major Level of Organized Education Will See Itself as Capable of Managing Its Own Program Planning and Teachers at Each Level Will Seek Autonomy Over a Greater Range of Matters Important to Them. The traditional practice over the years has been for the educational program of any major level of the school system (i.e., elementary, junior high, senior high) to be shaped and formed in great part by persons other than those charged directly with the responsibility for seeing that goals and objectives assigned to it were accomplished. Outside forces so affecting a school program were primarily (1) the expressed requirements of the next higher level in the system for admission to it, (2) the pronouncements of theorists, typically college and university professors, or (3) the products of commercial publishers of materials of instruction. There is reason to believe that this situation will change by 1978. Teachers at each of these levels will be a great deal more concerned to play a major role in determining educational policies and practices in the future than they have been in the past. There is ample evidence even now of the growing need teachers feel for increased autonomy in meeting their obligations to society, and there is evidence of their growing professional competence to assume it. Our prediction is that their need will intensify in the next years and that such autonomy will be an expected and accepted characteristic of being a teacher.

Curriculum Developers in Elementary and Secondary Schools Will Try to Overcome Extreme Separate-Subject-Centeredness and Move Toward a More Interdisciplinary Design. The curriculum reform movement which has been underway since about 1958 will have taken on a different character by 1978. This will be especially true in relation to the rather extreme tendencies toward separate-subject designs for the school curriculum, which have followed from the single-discipline-centered curriculum improvement projects of the past decade. It will also be true in relation to the primacy of cognitive goals over affective goals in recent years. Without a doubt, this recent developmental work will leave its residue in the curriculum of 1978. Past efforts at major curriculum reform have always left some mark on the future. But, in our judgment, a major effort will be well along by 1978 to develop interdisciplinary designs for much of the curriculum that will exploit to the advantage of pupils the potential in that concept. Further, in our judgment, this development will proceed most rapidly in the elementary school curriculum. We believe, too, that concern for affective goals of education will have recaptured the attention of society and of curriculum planners to the point that any current imbalances in the direction of cognitive goals will have been redressed.

Schools, Especially in the Inner City, Will Have to Relate More Directly to the Total Environment. On the whole, schools have operated on assumptions about learning that may prove to be invalid. One such assumption is that the home environment and community influences are always supportive of the school's program. Another is that the school can provide motivation.

The school within the next decade will find it necessary to deal with students' parents, and other persons significant to them. Adult residents in the inner city often display an attitude of distrust and antipathy toward involvement with any institutional arms of the establishment. This attitude is reflected in children who come to the school from these homes. The influence of the school, if directed solely at children, will be ineffective in offsetting such attitudes and accomplishing educational aims. Therefore, it will be necessary for the school to develop instructional programs directed at the adult population which are designed to assist parents and others to cope effectively in an often hostile environment. An institution which offers help in attaining the basic skills and knowledge needed to upgrade employment, to assert political pressure, to secure the rights of all citizens, and to overturn the odds against the poor may, in time, earn the support of this large segment of urban population. This support will become increasingly essential if inner city children are to receive a quality education.

Emphasis Will Be Placed on Relevance in Learning. If children in schools obtain satisfaction from successful experiences, begin at starting points which are familiar, and move through programs which do not go on without them, then intrinsic motivation will have been established. This concept of relevant learning differs from the usual educational emphases in the school.

A concept toward which education appears to be striving is that learning for all should be relevant. This does not assume that there is a given body of subject matter which should be used to produce the desired concepts. Instead, the subject matter which should be used is that for which the learner in most cases has ready-made organizers in his own environment.

The idea of relevance leads logically to the recognition of plural cultures in our society. It suggests that such cultures be recognized and that they not be considered undesirable. Reality, however, points to the conclusion that those who live in the subcultures must learn to relate to, if not fully adopt, the dominant culture. No subcultures within a democratic society can remain as islands. Herein lies a dilemma. If all educational encounters are such that the learner has ready made organizers to give them meaning, the learner remains forever unable to relate to the broader dominant culture. On the other hand, if the subculture in which the learner lives is rejected and the educational encounters are drawn from an unfamiliar culture, little learning occurs and dissonance between the learner and the dominant culture results. The solution would appear to lie in a mix of encounters from the sub and dominant cultures. Also, a distinction should be made between those aspects of living which may continue indefinitely to relate to the subculture and those that eventually should be modified to enable the individual to adjust to the dominant culture in order for him to function effectively. The genius will be the discoverer of the proper interaction between the native and the dominant cultures necessary for the individual, and for the continuation of a democratic society. Such a program will contribute to an evolving rather than a static society.

IV. Implications for Teacher Education

The predictions for society and education by 1978 have certain implications for teacher education. These implications have been grouped into five major categories. They are:

1. Only broadly educated persons of high ability will be able to meet the demands of elementary teaching and make the increasingly difficult decisions required of teachers.
2. The emerging role of the elementary teacher will require depth in at least one academic content area as well as a high level of competence in utilizing a large number of teaching strategies.
3. Teachers will have to be able to work effectively with other professional and para-professional personnel.
4. The training program will be on a pre-service--in-service continuum.
5. The teacher must be flexible in his role adaptation in order to adjust to various educational environments.

Only Broadly Educated Persons of High Ability Will Be Able to Meet the Demands of Elementary Teaching and to Make the Increasingly Difficult Decisions Required of Teachers. Many factors are included in this implication. First of all, education is an applied science. Its practices rest for the most part on knowledge found in certain disciplines that are seen as being foundational to it. Namely, these are human biology, psychology, cultural anthropology, sociology, and philosophy. Education may be carried out one way at one point in time consistent with the combined state of knowledge in these foundational areas. But as that knowledge changes, so may the procedures and practices in education be required to change to take advantage of the new information available. Teachers, if they are to be professionals, need some understanding not only of the procedures they are trained to carry out, but also of the root bodies of knowledge on which those procedures rest. In a very real sense, the ability to use information from these foundation areas accounts for the difference between the teacher as a high level technician or as a professional.

Second, the elementary school curriculum itself is a broad and varied thing. There are elements from the totality of achievements of the human mind and spirit found in the elementary school program. To grasp the significance of the whole as something more than the simple sum of the parts in this regard seems to suggest the scholar-teacher as a model. This requirement goes beyond the demands placed on one to be able to teach one or more of the areas included in the curriculum. It includes a broad knowledge base from which the teacher may, for himself and with others, contemplate some of the more fundamental questions about schooling such as: What does it mean to be educated? What knowledge is of most worth? How can it best be arranged for teaching and for learning?

Third, the school and the teacher, in meeting their responsibilities to society encounter a diversity of cultures, of value orientations, and of personal and family aspirations. To understand and accept cultural diversity and cultural pluralism for what it is and to work as a teacher with it, requires a grasp of social realities and a point of view toward morality of the highest order. Schooling is always a normative matter. To set out intentionally to modify the behavior of children in particular directions suggests decisions by someone as to the way they ought to behave. It is a most complicated matter with extensive moral overtones to know when a behavior is of an order of importance so that it must be required at some minimally acceptable level from everybody in the society, or when the way in which a behavior is engaged in, if indeed it be engaged in at all, is rightfully and necessarily to be left to the choice of the individual concerned. Teachers need all of the help which a grasp of our cultural heritage can provide as they come to grips consciously with the full meaning of their role as teacher.

Of course, somebody else could simply tell the teacher what to do, how to do it, and why it needs to be done. There could emerge a group of super-teachers who would be the decision-makers for the many. But this does not seem to be the course which the teaching profession has set for itself. There are indications on all sides that teachers seek a greater measure of autonomy in their work, and that they want to be a party to a very wide range of decisions which need to be made about education, schools, and teaching. For society to extend the autonomy which the teacher requests, it must in turn ask for assurances that the teacher will make of himself the wise and well-informed person which such autonomy requires. Programs for the preparation of teachers of the future must show that this requirement has been accepted and built into the training.

The Emerging Role of the Elementary Teacher Will Require Depth in at Least One Academic Content Area as Well as a High Level of Competency in Utilizing a Large Number of Teaching Strategies. As pointed out elsewhere, teachers by 1978 will have to work effectively as team members. The teacher will need to share with his colleagues the insights he has that they do not have. Unless each has unique strengths to contribute to the whole, a major benefit from joint effort is diminished.

The area in which their differences will be most significant will be in the knowledge of the subject fields and the teaching materials related to them on which the elementary teacher will draw. The elementary teacher, therefore, needs not only to be generally well educated as a person, but to be prepared in greater depth in one or two special areas that contribute to the elementary curriculum.

An entirely different factor emerges to demand a high level of competence in utilizing a large number of teaching strategies. As trends move more in the direction of individualized instruction, the role of the elementary teacher becomes significantly more client directed. That is to say, that sufficient materials and technology now exist for the elementary teacher to realistically provide for the broad range of individual differences within the pupil population. This demands, however, an extensive repertoire of highly developed strategies on the part of all teachers.

Teachers Will Have to be Able to Work Effectively with Other Professional and Para-Professional Personnel. The teacher of the future will have to be able to relate to other teachers and to other types of educational workers. Cooperative or team teaching plans for staff utilization require effective group work. The emergence of para-professionals to assist with a wide range of teaching-related tasks introduces an occupational hierarchy into the schools within which teachers must learn to work effectively. Teachers will also be called upon to work with persons other than school personnel, as more and more inter-social agency cooperation is required if society is to be as effective in educating children and youth as the times will require.

The model reflects an awareness of this in the totality of factors to be considered at the time of admission to the program. It goes beyond recognizing the effects of certain inherent personality characteristics of trainees for effective inter-personal relations and group work, to include formative experiences in the training program itself to support attitude and skill development required in such situations.

The Training Program Will Be On a Pre-Service--In-Service Continuum. The line of differentiation between a university and a school system as it relates to teacher education will be less distinct in 1978. To be sure, the university will continue to carry major responsibility for pre-service preparation but the schools will be more involved. At the in-service level, the proportionate roles will be reversed, with the schools carrying the major responsibility while the university supports. The in-service program will be planned as part of the total training of a teacher, and will focus on the refinement of behaviors which are best sharpened after the teacher has had the full responsibility of a practicing professional, and in connection with the special problems the particular teacher must deal with.

The Elementary School Teacher Will Need to View the Elementary School as an Institution in Almost Continuous Transition and Come to Expect and Cope with Educational Change Accordingly. It is unlikely that the role of the elementary teacher will become fixed in the foreseeable future. New developments in technology, the involvement of additional organizations in the preparation of instructional materials, the changing roles of other public institutions, and the demands of society upon the school will necessitate changes in the role of the school and of the teacher. It is imperative that teachers develop a psychological set to expect change and that they be psychologically and emotionally able to accept change.

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CHAPTER III

A RATIONAL APPROACH TO PROGRAM DESIGN

I. Introduction

Chapters previous to this one have reported predictions for the future and a number of implications for teacher education. Acceptance of these implications will not permit the continuation of teacher preparation programs with inadequate design. Present day programs reflect a number of theoretical and design inadequacies which create problems in assuring the competency of the beginning practitioner.

Theoretical Inadequacies

One theoretical position on the derivation of teaching competence begins with the premise that skill in teaching comes from direct knowledge of what produces learning. In this view, we need only to supply the prospective teacher with knowledge of what is to be taught and knowledge of how and under what conditions children learn. Supplied with a thorough foundation in these parent disciplines of learning theory, developmental psychology, social psychology, and anthropology, the teacher as a professional will automatically be able to draw upon this knowledge to structure children's experiences in such a way as to promote desired learning.

On the other hand, proponents of quite different program designs assume that teaching is basically a set of skills and routines which can be performed much as a craftsman performs with the tools and materials of his trade. In this conceptualization, the teacher has no need of extensive background in the parent disciplines. *Rather, he needs extensive training and perhaps* apprenticeship to develop the requisite skills and the disposition to employ them in appropriate contexts.

These two positions represent extremes at either end of the continuum of views on the nature of teaching as related to teacher preparation programs. The first position is inadequate because knowledge about learning does not automatically transfer to competence in teaching (or producing learning). Facts and principles related to learning do suggest teaching strategies, but only indirectly. Learning principles, for example, are often stated in terms which limit their direct application to the context of the laboratory experiments from which they are derived. The conditions in the classroom, with hundreds of variables being uncontrollable, are quite different. Knowledge of experimental results and of general principles are undoubtedly useful in suggesting hypotheses about effective teaching practices, but are of limited value in drawing conclusions directly about specific strategies usable in the classroom.

The second extreme, which focuses exclusively on developing teaching skills, is also inadequate. Its strength lies in the emphasis on translating knowledge from the parent disciplines to forms of behaviors which are directly transferable to teaching situations. The teacher in training needs help with such translation for two reasons. First, the behaviors themselves are too important to be left to chance on the assumption that the teacher will do the translation from theory into practice on his own. Second, the process of translating is itself a skill which is useful and necessary to the fulfillment of teaching responsibilities. The weakness of the approach which supplies ready-made translation from theoretical principles into performable behavior lies in the lack of assurance of another kind of transfer--from problems encountered in the training situations to those encountered in actual teaching situations. Without a theoretical basis for assessing elements in a teaching situation, the teacher may fail to recognize similarities which would allow him to use practiced techniques, nor is he likely to recognize differences which indicate the need for a new approach. Further, he is likely to have difficulty in developing the requisite new approaches without some understanding of principles of human learning, development, and interaction.

Design Inadequacies

While generalizations admittedly overlook the existence of a few exemplary and innovative programs for the training of elementary school teachers, by far the majority of today's programs can be criticized on a number of design counts.

The selection process at every level of the program is based upon criteria which often have very little to do with the teaching process. Student potential and progress is assessed on the basis of the academic achievement gathered through the administration of paper and pencil tests or term papers. No assessment is made of the individual's potential to work with people. Often the only information predictive of teaching behavior is gathered at the very end of the program during a student teaching experience, at a time when very little use can be made of the information.

Although the content of typical programs helps students learn about the educative process, it frequently does not help them learn how to teach. Because most program courses lack carefully integrated practicum experiences, the primary training medium becomes a verbal one. When we consider that much of this verbal activity is passive and has little relationship to teaching behavior, this represents a serious deficiency.

The typical program often provides little flexibility since all students are expected to participate in and benefit from common activities. Completion of a sequence of courses assumes attainment of the necessary requisites for teaching. There is little room for meeting individual differences in such a program or for additional preparation that some students need.

Probably the most serious program design inadequacy is the omission of systematic feedback provisions. Teacher education students have little information about how well they are progressing toward professional competency; teacher educators have little information about how effective their instruction is in helping their students progress toward professional competencies; and institutions have little information about how successful their programs are for developing competent teachers. There are no mechanisms within existing programs which provide for systematic modification and improvement of the program.

II. A Position for Rational Program Development

The position taken as the basis for the model training program recognizes elements of both earlier stated theoretical positions as being necessary prerequisites for teaching competence. Neither alone, however, represents a sufficient theory upon which to build a comprehensive elementary training program. Working from a definition of teaching as that set of actions or behaviors intended to influence systematically the learning of a person or persons, it follows that knowledge of the conditions of learning outcomes can be used most significantly to influence learning by persons with highly developed performance skills.

It becomes increasingly clear that a program for training elementary teachers must turn out as a product persons who have not only an accumulation of learned skills, but, of equal importance, a maturity of judgement which comes only with structured knowledge and experience. If, as implied here, the complexity of teaching itself is great, a comprehensive design for training persons to teach is of even higher-order complexity. A training program which does not provide a highly systematic way of identifying tasks and organizing program elements cannot be expected to succeed in regularly producing large numbers of elementary teachers who fit this specification.

It is, therefore, a reasoned decision to make use of what is commonly called the systems approach, which has, in other contexts, proved to be a rational scheme for designing different types of complex production programs. The use of this approach in educational enterprises and in programs with elements similar to some model program components is not unprecedented. Its application to a total program of a type here envisioned can provide an additional test of its effectiveness.

Applying a Systems Approach

In application within an industrial model, a systems approach begins with detailed specifications of the product and is followed by a careful analysis of the requisite materials and actions used to produce the product; it proceeds to an assignment of system tasks to the most efficient man and machine components available; and it provides for regular system modification based on systematic feedback provisions which includes the monitoring of performance and production.

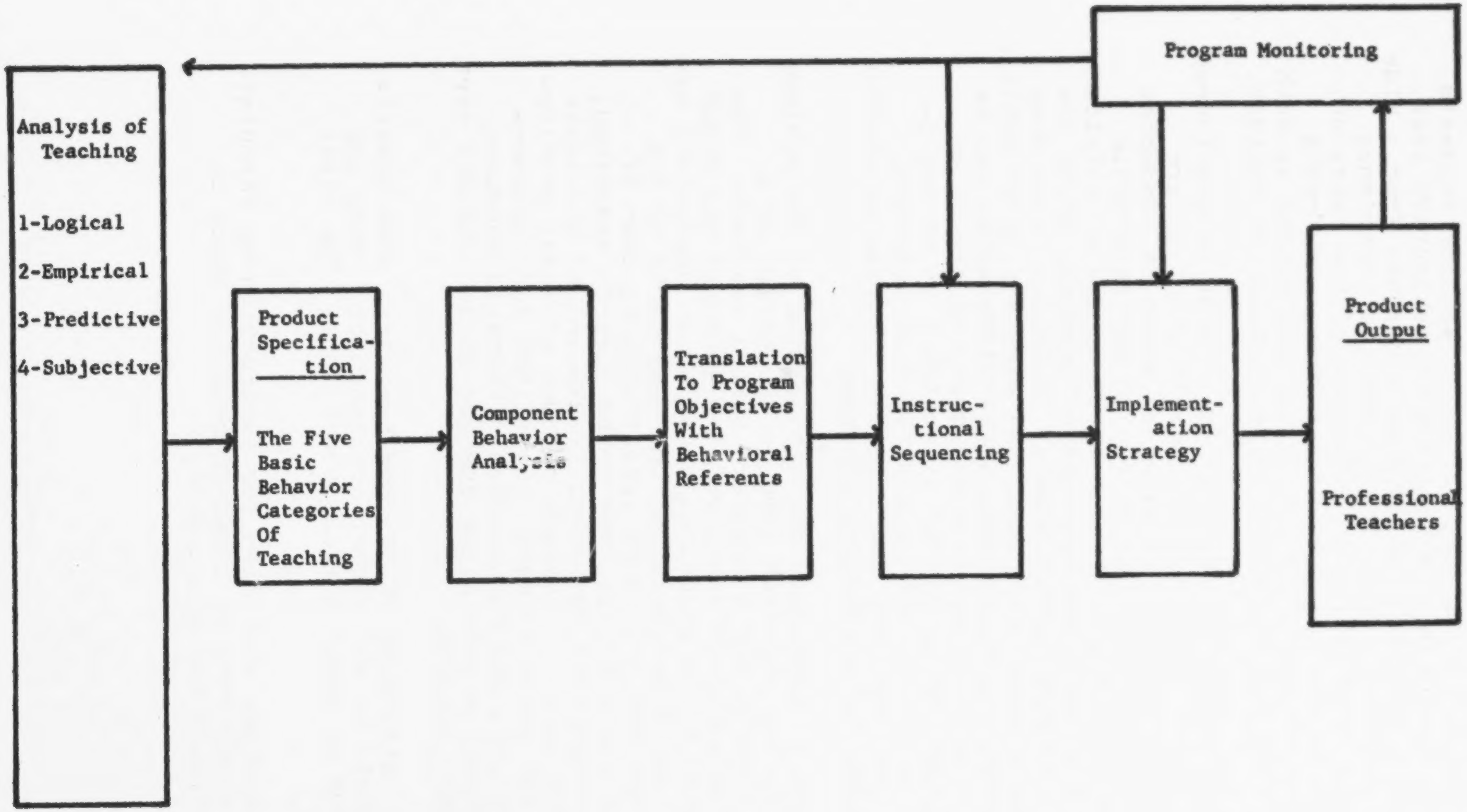
To apply such a system to a training program for preparing teachers requires modification. In the first place, human product specification cannot be made with the same objectivity as for the material products of industry. Material products maintain a constancy which can never be attained by human products. To define teaching in terms of its function and to analyze the performance of teaching not only as it actually exists now, but as projection suggests it ideally should be, is in itself a subjective task. It demands a synthesis of knowledge gleaned from a wide range of relevant disciplines, from the experience of actually teaching, from a reading of the research literature on the analysis of teaching, and from a recognition of hopes for the future engendered by both idiosyncratic and normative values within the culture.

In the second place, teaching cannot be considered an inert task. Learner responses to teaching are infinitely variable. Teaching can never be conducted at more than one point in time with any reasonable degree of certainty as to the exact nature of elicited learner response. The elements of personal style are apparent in every performance of teaching. Even when two teachers execute an identical strategy under similar instructional circumstances, style differences can be detected. It was therefore necessary to arrive at task descriptions sufficiently abstract to be applicable across both teachers and types of teaching, while at the same time sufficiently concrete to provide a sound base for a training program.

Figure 4 represents the application of the systems approach in its modified form to the design of a training program for elementary school teachers. The use of this approach contributed a language and rigor which proved to be exceedingly useful in analyzing, organizing, and inter-relating the many parts of the training program. Product specification, even if arrived at subjectively, had to be clearly described; logically-organized component breakdowns of the tasks of teaching were a necessary outcome of model development and can serve as basic guidelines for implementation designs; and much-needed systematic feedback and modification provisions emerged as an integral part of the model program.

Five categories of teacher behaviors were identified as basic to all elementary teaching. They are stated here in their most abstract form. The first four are:

1. The teacher will plan for instruction by formulating objectives in terms of behavior which is observable and measurable.



A MODEL FOR RATIONAL PROGRAM DEVELOPMENT

Figure 4

2. The teacher will select and organize content appropriate to specified objectives in a manner consistent with both the logic of the content itself and the psychological demands of the learner.

3. The teacher will employ appropriate strategies for the attainment of desired behavioral objectives.

4. The teacher will evaluate learning outcomes on the basis of changes in behavior.

These four behavior categories are integral parts of a regenerative or cybernetic conception of teaching in which both long range and immediate knowledge of results serves constantly to modify the direction and shape of the teaching act. (See Figure 1, page 7.)

The fifth category of bahaviors was of a somewhat different order:

5. The teacher will demonstrate an acceptance of leadership and professional responsibilities and demonstrate the ability to serve as a professional leader.

It takes little imagination to visualize all of these steps being followed by persons carrying out the teaching function, whether it is seen as that of an indirect facilitator of pupil learning activities, as the diagnosor of pupil needs and prescriber of pupil learning experiences, or as a direct transmitter of information to pupils via lecture. It seems likely that any approach to influencing the learning of others will demand competent performance in all five behavior categories.

While the chapters which follow contain detailed descriptions of the component breakdown of each of the five basic behavior categories, it is necessary at this point to explain the rationale for describing teaching in these terms.

It was decided that a regenerative model was the only realistic conceptualization which adequately provided for dealing with the infinite variability of learner responses. There is always the distinct possibility that the performance of highly precise and repetitive teacher behaviors will become a more important consideration than coping with learner response variability. In order to avoid this, all instances of verbal and non-verbal feedback must be recognized and interpreted by the teacher who is skilled at constantly modifying his own performance of teaching to maximally influence the learner.

Four behavior categories constitute broadly-conceived basic teaching tasks. In a very real sense, the formulating of objectives, the selection and organization of content, and the choice of appropriate strategies can be conceptualized as pre-active tasks. That is, they are tasks which must normally be performed prior to any actual interactions with a learner, although under some circumstances, the execution of certain strategies may call for the involvement of learners in planning activity.

Planning for instruction is, of course, an essential prerequisite for all types of teaching. Although it is conceivable that instruction could proceed with objectives unstated, it is inconceivable that meaningful instruction could long proceed without a purpose. Following systems approach requirements demand that purposes (in the case of teaching, instructional objectives) be explicit and specific, with the assumption that only in this way can decision, execution, monitoring, and regeneration be accomplished with precision. For this reason, the statement of instructional objectives in terms as precise and behavioral as possible was a process utilized both in model program development, and in describing the basic tasks of teaching.

It must be acknowledged that a strong case can be made for the inclusion of other types of objectives, such as those which call for no more than exposure of a learner to natural elements within the environment, without specification of explicit expected outcome. Such ideas will ultimately receive attention in training, particularly during in-service years. However, for pre-service training, the use of a behavioral model holds the strongest promise as an organizing concept since it expedites acquisition of the knowledge and skill needed for initial entry into teaching.

The statement of objectives in behavioral terms facilitates elements of other basic tasks, such as the systematic selection of content for learning. A teacher who has learned to apply principles of selection will carefully diagnose learner characteristics and will consider the logic of specific content. He can apply these principles in such a way that learner interaction with that content will be enhanced. Teachers have traditionally played a significant role in structuring content for particular learners. The teacher of the future is likely to play a somewhat different role with respect to the selection and organization of content. A trend toward use of multi-media, including pre-packaged programs for individual learners, suggests a teacher role which is less that of a developer of instructional programs, and more that of an assessor and adaptor of pre-packaged programs. Either role demands that selection and organization skills be highly developed, and that considerable practice in examining, selecting, and utilizing a wide range of available content material be provided.

At some point, the teacher must decide on a strategy for arranging and controlling the conditions of the contact of learner with content, and then implement whatever strategic interaction he has selected. The model program treats factors underlying both the pre-active behaviors needed for strategy selection and the interactive behaviors involved in strategy implementation under the single behavior category of "strategy."

Strategy selection requires the teacher to make decisions about what kind of learning is involved, what environmental arrangements are most likely to promote that kind of learning, and what kinds of interactions will promote the most productive involvement of a given learner with selected content. These pre-active decisions must be made if teaching is to be performed scientifically rather than haphazardly. Thus, the model program provides specifications for a sound theoretical decision base and for practice at reaching such decisions.

The ability to execute strategies, once selected, is a major goal of the model program and is considered a key to the successful performance of all types of teaching. Teachers must be able to arrange two basic kinds of strategic interactions: (1) non-personal interactions, and (2) interpersonal interactions, including both content-oriented and functional interactions.

Non-personal interactions require the teacher to arrange the physical environment so that the content is mediated through some non-personal means, such as the surroundings (as in a field trip), or some item on the media list, such as books, still and moving pictures, charts, audio equipment, laboratory models, and materials. Recent research activities give promise of providing useful guidelines which will assist the teacher in selecting and structuring student involvement with the non-personal medium most appropriate for a given learning situation (Briggs, 1967).

Interpersonal interactions of the content-oriented type refer to those in which the learner interacts with another person (usually the teacher) in a situation where the focus of the interaction is the content selected to further some instructional objective. Under this heading go behaviors often classified as instructional techniques or the "technical skills of teaching" (Stanford Center, 1967). These behaviors involve the execution of particular verbal and non-verbal tactics designed to evoke particular responses from students, to provide or secure feedback which can be immediately processed by teacher or students, or some similar purpose.

A second type of interpersonal interaction, which for these purposes is termed "functional interaction," refers to those interactions which are not primarily tied to the content selected for some instructional objective. Under this heading are found techniques for assessing and improving the physical conditions of the learning environment and for setting a psychological climate conducive to learning. Because reinforcement techniques have been proven crucial to the modification of behavior (Spaulding, 1963; Becker, 1967), and because the reinforcement concept is generally unrelated to the specific content of instruction, reinforcement skills are treated independently from other strategies and included under the functional interaction category.

To the same extent that a teacher performs certain tasks pre-actively and interactively as he seeks to influence learning systematically, he must also consider post-actively the results of his efforts. A conceptualization of evaluation which includes a formative (regenerative) function is fully compatible with the classic summative function which furnishes information in the form of grades and ranking.

Teachers must evaluate the outcomes of instruction for the purpose of modifying the course of instruction, as well as to provide information relative to learner status and progress (Wilhelm, 1967). The instructional objective, considered first as the *sine qua non* of planning, serves also as the basis for evaluation since it has been precisely stated in terms which facilitate observation and measurement. A wide range of skills must be acquired in order to evaluate the outcomes of instruction for the full range of purposes.

The fifth major dimension of teacher behavior, involving professional responsibilities and leadership, cuts across all other tasks and adds to the performance of teaching that quality which sets it apart from more inert activities. The component behaviors of this fifth behavior dimension receive somewhat less emphasis during the pre-service phase than in the in-service phase of training because of the more urgent priority of instructional and management skills and because of a readiness factor which cannot be assumed until there is input from experiences gained while carrying out full teaching responsibility.

In this category are skills related to handling of one's emotional behavior and development of a personal teaching style; skills in handling interpersonal relationships with colleagues within the profession and with persons and agencies outside of the profession; and with skill in interpreting, assessing, and applying results of educational research. All three of these areas are intimately interrelated and are necessary for a teacher who is to be an agent of change, and who will be able to adapt to changing conditions.

III. Design Features

Although the exact nature of any training program which emerges as an implementation of this model must fit the specific institutional and situational characteristics of the arena in which it is to operate, it is essential to provide at least a design framework within which the behavioral content of the program can best be taught. This is done in two ways. First, for ease of presentation, certain training concepts have been utilized as the framework for organizing program content. Secondly, other major concepts are discussed in subsequent chapters which are suggestive of the kinds of implementation schemes which might be designed.

If the predictions on which this model program rest are accurate, expectations for teacher performance in the next decade are incredibly high. In early stages of model development, it became apparent that a total training system had to span both undergraduate training years and early in-service teaching years as well, if a professional product was to be created. As presently constituted, colleges and universities have neither the range of environments nor training personnel needed to accomplish this task. The basic model program, therefore, is built around a three-phase concept designed to provide not only a broad academic competence and a skills base for beginning teaching, but also the final polish of professionalism and teaching competence. This can best be done within a total training system which carefully monitors early teaching performance and supplies the additional training and support needed. The underclass, pre-service and in-service phases described in the chapters IV, V, & VI reflect this rationale.

In addition, several essential facilitating components are described in detail. Chapter VII outlines a comprehensive admissions and screening program which responds to a problem referred to earlier as a design inadequacy of many current training programs. A computerized management control system is described in Chapter VIII. This system is necessitated by the complexity of the total system, the flexibility concept particularly evident in the pre-service phase, and the extensive need for systematic monitoring of performance. The final facilitating component can provide the key to successful implementation. Personnel across several cooperating institutions must operate closely together, often in new roles, to carry on the training projected. Chapter IX deals with the development of the type of staff necessary to bring such a program to fruition.

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CHAPTER IV

MODEL PROGRAM: UNDERCLASS PHASE

I. Introduction

Rationale

Predictions stated earlier for society and for education by 1978 pointed up the need for an elementary school teacher to be a broadly educated person. No less will suffice if one is to understand the complex nature of life as it is coming to be, and the inevitable ways in which this becomes a force affecting the nature of the elementary school program. An effort has been made, too, to characterize education as the applied discipline which it is and to call attention to the connections between it as a field of endeavor and the root disciplines which contribute to its form and substance. The point has been made that to grasp the meaning of education is to have some acquaintance with the content and processes of these foundational fields. Inferences have been drawn, too, about the nature of teaching by 1978 and the implications that reside therein for those who desire to make the occupational choice to teach; both training requirements and requirements of a more personal nature have been alluded to. The underclass phase of the model program has been developed with both of these considerations in mind. It provides for a strong general education component containing both required experiences and opportunity for the elective pursuit of personal interests, and a pre-professional studies component.

II. Major Features

General Education

General education, used here synonymously with liberal education or basic studies, refers to that portion of university study which students share in common regardless of future occupational choice, and which is designed to provide them with a comprehensive and vivid look at their world through study of the natural sciences, the social sciences, history, and the humanities. The intent is to expose them to the far-ranging accomplishments of the human mind and spirit, and in a way to encourage and free each of them to gain satisfaction from life while contributing to a better life for all. General education, then, is most important in its own right. It is of double significance for elementary school teachers, for in a very real sense, they use their general education twice: once for themselves as maturing young adults, and again as raw material for subsequent development in teaching. Teaching, to an extent greater than in other professions such as medicine and law, draws upon the understandings, concepts and precepts derived from general education for a large part of the content of its work and the attainment of its goals. Approximately two-thirds of the time devoted to the underclass phase of the model program is expected to be used in developing the skills and understandings suggested by this descriptive definition of general education. The very nature of such studies dictates that they be allocated to appropriate divisions of a university other than the school or college of education.

A major portion of the skills and understandings essential for entry into the pre-service phase of the model will be completed in general education studies. Opportunities to extend these in both depth and breadth are made available in the pre-service phase.

Pre-Professional Studies

Pre-professional studies refers to work in the behavioral sciences and to experiences in schools and with other community agencies. Approximately one-third of a student's time in the underclass phase will be involved with pre-professional studies.

The behavioral sciences are pre-professional for future teachers in much the way that biology and chemistry are pre-professional for medical students. Thus, during the underclass phase selected studies are undertaken in psychology, sociology, cultural anthropology, physiology and human development. These behavioral sciences develop background for understanding the learning process, to concept of culture and its impact upon the individual, man's efforts to evolve social institutions like the school, and the complexity of human interactions be they between individuals or groups. Through all of these studies the major pre-professional intent is to move students to a more complete understanding of (a) the meaning of organized education, (b) the modifiability of human behavior, and (c) the nature of teaching both as a moral undertaking and a set of professional practices. Teachers-to-be, thus introduced to the behavioral sciences, will have a beginning awareness of education as an applied discipline.

Early awareness-involvement experiences refer to the engagement of pre-program underclass students in activities specifically designed to expose them to elements of teaching and learning not normally available to them, and thus to yield information for them about teaching. The importance of these experiences cannot be over-estimated. For many, if not all students, they will constitute the primary source of information upon which the choice to prepare or not to prepare one's self as a teacher will rest.

Thus, there are four main purposes for including these experiences in the underclass phase of the model:

1. Trainees can become aware of the nature of elementary school teaching and its intended impact on pupils' learning.

2. Trainees can secure accurate information about the demands which this particular preparation program will place on them if they choose to apply to enter it.

3. Trainees can be helped to determine the strength and direction of their motivation for entry into a program leading to a career in elementary school teaching.

4. Program staff will be helped to obtain information on potential trainees in terms of aptness, motivation and personality suitability for entry into training that will be of assistance in selection.

Beginning in the freshman year at a university, opportunities for clinical experiences in the school, for close association with a continuing seminar group of peers under the direction of a counseling professor, and for hours of service in school and community agencies will be provided. Details of a suggested early awareness-involvement program are included in Appendix C. It provides for early awareness activities of four basic types:

1. individual counseling and planning with program faculty;
2. small continuing seminars;
3. video tape viewing sessions, accompanied by lecture and discussion; and
4. clinical involvement in simulated teaching situations, observations of ongoing classroom teaching, one to one tutorial experiences with children, small group instruction experiences with children, and service assignments with selected community agencies.

CHAPTER V

MODEL PROGRAM: PRE-SERVICE PHASE

I. Introduction

The pre-service education phase of the program is designed to prepare the trainee to assume responsibilities of a beginning teacher. Figure 5 provides a graphic representation of the oranization of this pre-service phase. When it is followed by experiences of the in-service education phase, the program will provide the trainee with a carefully structured foundation for a professional teaching career.

Although admission to the model program will precipitate concentration of a trainee's time and attention on the professional education component, provision is made to continue basic and elective studies with particular emphasis on content which has direct relevance to the curriculum of the elementary school.

An expectancy that a trainee will pursue academic study in breadth and depth grows out of educational implications discussed in Chapter II. For most trainees this will mean devoting approximately one-third of their available study time to course work. This will broaden their scope of basic studies in keeping with the first major implication for teacher education, and will provide an area of academic concentration related to the elementary curriculum as suggested by the second implication. A trainee who meets professional component performance criteria ahead of anticipated norms will then have a number of options such as (1) strengthening of academic competencies through course work compatible with interest and area of concentration, and (2) initiating preparation for working with the very young child, programming content for learning, teaching children of special abilities and needs, or other special assignments.

The professional preparation component is structured around an analysis which identifies major categories of teacher behavior, the acquisition of which should equip the trainee to begin teaching. Teaching demands the ability and prerequisite knowledge to plan for and carry on instruction which involves: (1) selecting and writing objectives, (2) selecting and

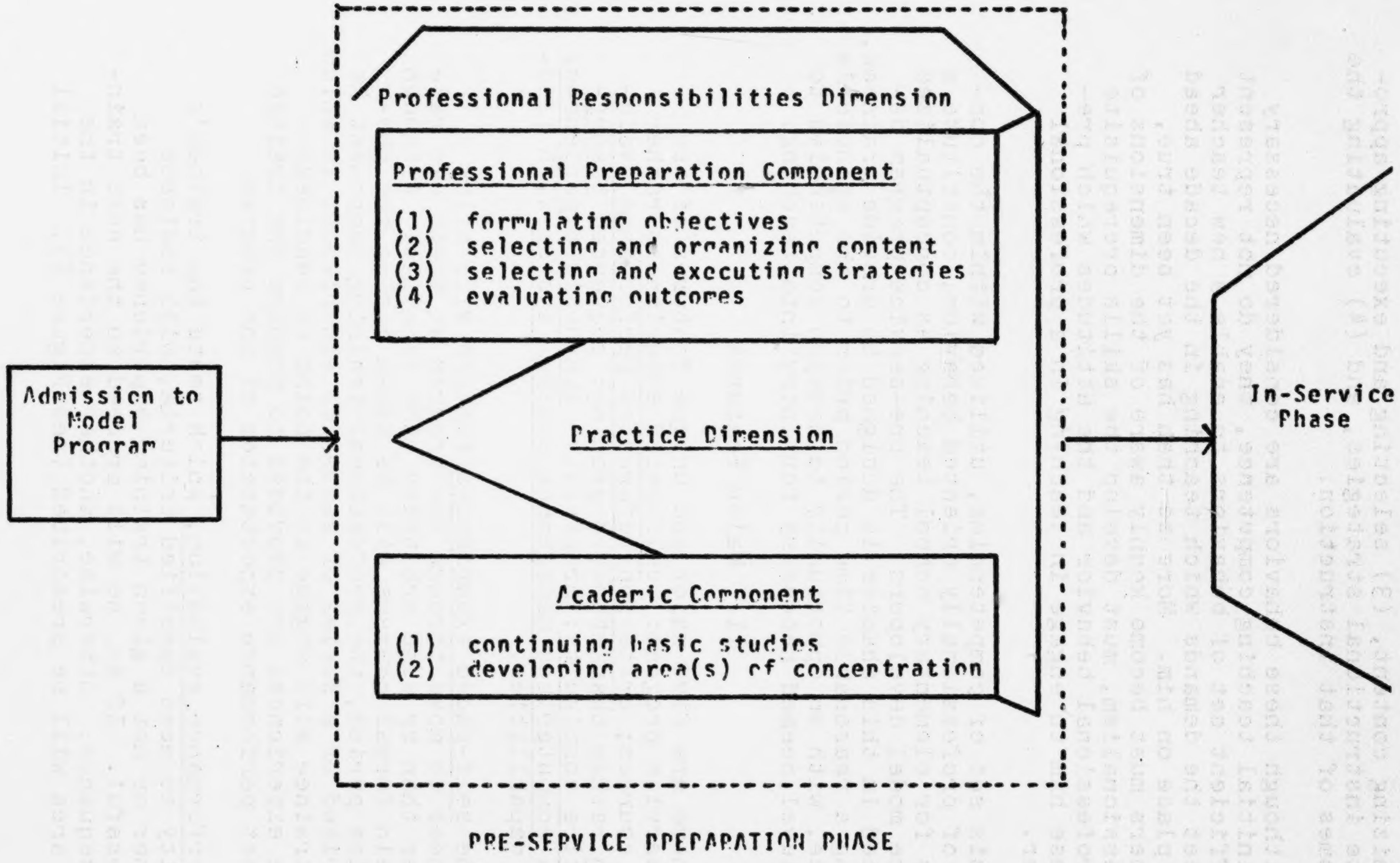

Admission to Model Program
Professional Responsibilities Dimension
Professional Preparation Component
(1) formulating objectives
(2) selecting and organizing content
(3) selecting and executing strategies
(4) evaluating outcomes
Practice Dimension
Academic Component
(1) continuing basic studies
(2) developing area(s) of concentration
PRE-SERVICE PREPARATION PHASE
In-Service Phase

Figure 5

organizing content, (3) selecting and executing appropriate instructional strategies, and (4) evaluating the outcomes of that instruction.

Although these behaviors are considered necessary for initial teaching competence, they do not represent a sufficient set of behaviors to enable a new teacher to meet the demands which teaching in the decade ahead will place on him. More so than has yet been true, teachers must become keenly aware of the dimensions of professionalism, must develop the skills prerequisite to professional behavior and the attitudes which predispose him to engage in teaching in a professional manner.

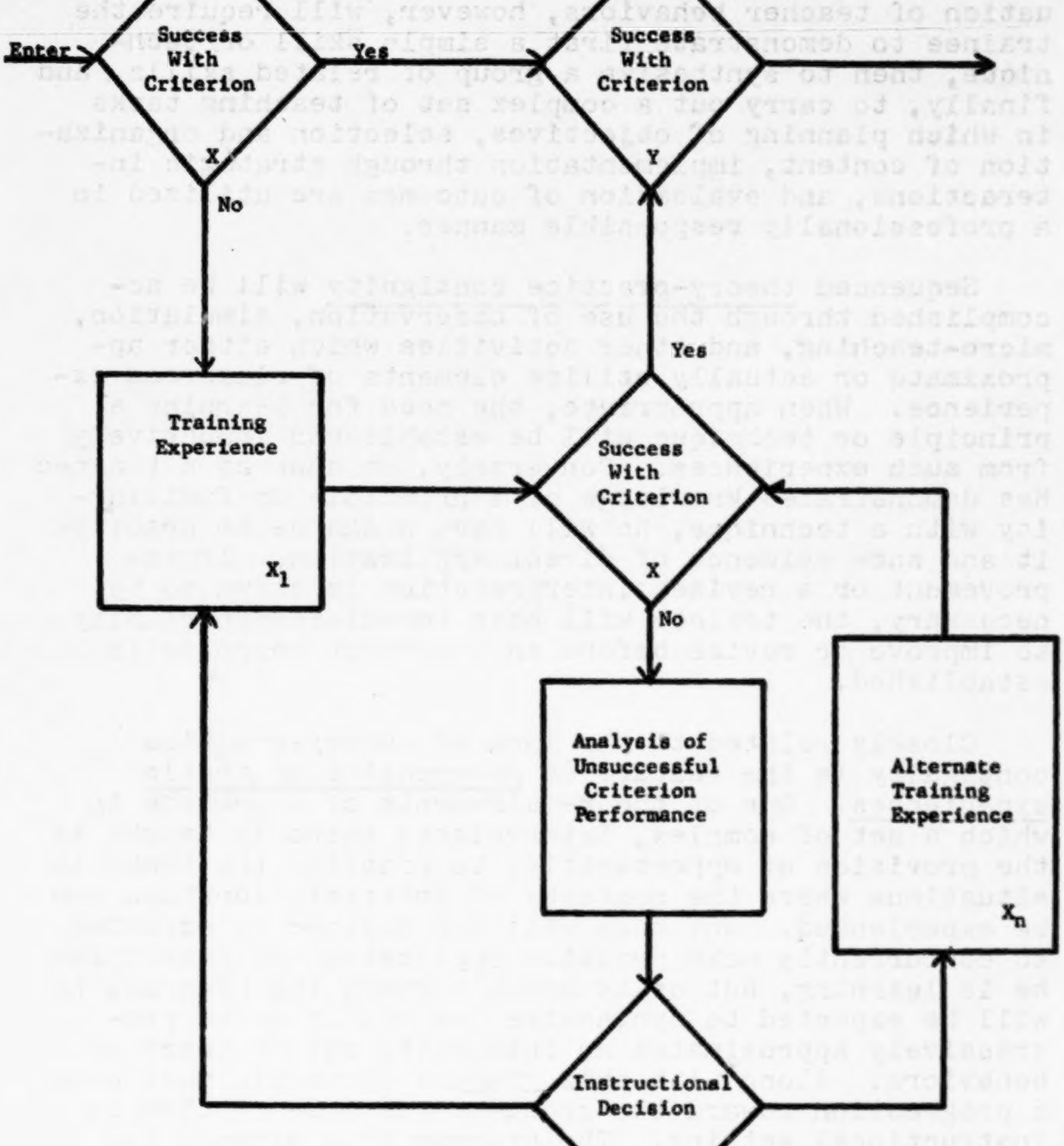
This set of competencies, utilized within the context of professionally oriented behavior, constitute a basis for elementary school teaching as conceptualized by the model developers. The pre-service program described in this chapter is designed to provide trainees, during a reasonable time period prior to the bachelor's degree, with an opportunity to develop competencies to the level deemed necessary for entry into teaching.

II. Major Features

There are five major and unique features of the pre-service program: self-paced experiences rather than courses; criterion-referenced performance evaluation rather than standard grading; sequenced theory-practice contiguity; progressive synthesis experiences; and a computerized management control system with feedback capabilities.

The self-paced experiences feature will allow trainees to move through the program at their own rate rather than by some arbitrary time schedule. Although certain formal courses will be taken during the pre-service period, the professional training component is comprised of a series of sequenced experiences in which the trainee will engage at the point of readiness. These experiences are provided to prepare the trainee to meet performance expectancies of the program.

Performance evaluation, which tests the trainee's ability to meet specified criteria, will indicate whether or not a given training experience has been successful. If so, he will proceed to the next training sequence. Otherwise, another experience in the same area will be prescribed (see Figure 6). Initial



TYPICAL TRAINING EXPERIENCE
WITH RECYCLING PROVISION

Figure 6

evaluation for certain knowledge and skill tasks may be based upon standard paper and pencil tests. Major evaluation of teacher behaviors, however, will require the trainee to demonstrate first a simple skill or technique, then to synthesize a group of related skills, and finally, to carry out a complex set of teaching tasks in which planning of objectives, selection and organization of content, implementation through strategic interactions, and evaluation of outcomes are utilized in a professionally responsible manner.

Sequenced theory-practice contiguity will be accomplished through the use of observation, simulation, micro-teaching, and other activities which either approximate or actually utilize elements of classroom experience. When appropriate, the need for learning a principle or technique will be established inductively from such experiences. Conversely, as soon as a trainee has demonstrated knowledge of a principle or familiarity with a technique, he will have a chance to practice it and show evidence of direct application. If improvement or a revised interpretation is shown to be necessary, the trainee will have immediate opportunity to improve or revise before an incorrect response is established.

Closely related to the idea of theory-practice contiguity is the feature of progressive synthesis experiences. One of the requirements of a program in which a set of complex, interrelated tasks is taught is the provision of opportunities to practice the tasks in situations where the contexts of interrelationships can be experienced. Not only will the trainee be expected to concurrently make practice application of principles he is learning, but as he moves through the program, he will be expected to synthesize new skills as he progressively approximates an integrated set of teaching behaviors. Along with this gradual synthesis must come a progression toward the greatest possible realism in instructional setting. The program thus demands the provision of a sequence of practice-type experiences which progress from application of principles in analysis activities to the reality of classroom teaching responsibilities.

Although the total range of practice experiences is utilized at any point in the trainee's program where deemed appropriate, a normal progression provides for:

1. systematic analysis of taped or actual teaching episodes;
2. response to simulated instructional situations;
3. teaching in small scale situations such as one-to-one tutoring and micro-teaching;
4. single task teaching to normal size groups such as teaching a unit of work to a class; and
5. reality experiences in which a trainee takes major responsibility for teaching a group of students over a period of time sufficiently long to enable him to meet performance criteria for beginning teaching.

The computerized management control system will provide detailed monitoring of trainee performance, progress, and status. It will also permit continuous evaluation and revision of all program elements. In a sense, it is this feature which makes all the other features practicable, since flexible scheduling is required in order to effect the continuous rearrangement of experiences for each trainee. This will be accomplished by a program manager who will receive reports on current and projected trainee activities from the computer with a frequency and accuracy such that staff, material, and resources needed for a given time period will be readily apparent.[1]

III. Program Components

Five components or major objectives are presented herein. Each follows a format which provides an introductory statement, an abstract previewing the categories of enabling objectives to be detailed, and the detailed sequential listing of general enabling objectives, juxtaposed prototypical behavioral outcomes, and codes representing suggested types of training experiences (See Figure 7). Additional descriptive material which extends and clarifies the model framework for the pre-service phase can be found in Appendices D, E, F, and G.

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[1] See Chapter IX, Computerized Management Control System for details.

Although the listing of component behaviors under each task is for the most part logically ordered according to a sequence from knowledge to application, this is not intended to imply that instructional sequences for implementation designs should maintain this sequence. In fact, the major training features described more carefully in Chapter V will suggest to many who may wish to design implementation schemes that quite different sequences are in order. For instance, it would be highly desirable to explore application of the model in a totally inductive training design where all instruction leading to performance of specific behaviors grows out of a critical analysis of trainee approximations of the teaching act.

BEHAVIOR ONE: FORMULATING OBJECTIVES

> The teacher will plan for instruction by formulating objectives in terms of behavior which is observable and measurable.

The objectives which a teacher is responsible for devising are operational; that is, they represent steps toward broad, terminal goals based upon interpretations of societal expectations, and toward the intermediate aims specified by state and local school systems. These operational objectives are referred to herein as instructional objectives. The teacher must become skilled at stating instructional objectives and must be able to translate broad goals and intermediate aims into such objectives.

In accord with the position taken throughout this document, objectives stated in terms of desired learner outcomes bear the greatest instructional utility. They serve as an interpretable guide for selection of content, its organization, and resultant strategy selection, and they constitute the basis for systematic

Individual Activities

Cmp	Computer Interaction
Int	Interview and Consultation
IS	Independent Study
LAV	Laboratory and Audio-Visual
Wr	Writing

Group Activities

Dsc	Discussion Group
Lct	Lecture
Prj	Project
Prs	Presentation

Field Observation

Ocl	Observation in Class
OO	Observation in Other Site

Simulation

SmO	Observing Simulated Situations
SmP	Producing Simulation

Teaching

Tcl	Classroom
Tsg	Small Group
Tt	Tutorial (one student)

(See Appendix D for a detailed description of each type of training experience.)

EXPERIENCE CODES

Figure 7

evaluation of instruction and learning. Behaviorally stated objectives effectively specify instructional intent by furnishing the specific details to answer three questions:

1. What behavior (or action) is expected of the student as an outcome of instruction?

2. What is the object of the behavior? (content)

3. What criterion must be attained for the behavior (or action) to be considered successfully learned?

Abstract

Stating Objectives in Behavioral Terms. This series of expectancies is provided to enable the trainees to attain knowledge of the nature of behavioral objectives and skill at stating them. Utilizing simulated instructional data, the trainee will build a knowledge of general categories of behavioral events of specific behavioral terminology, and of the basic elements of objectives stated in behavioral terms (i.e., in terms of learner outcomes). He will then be expected to become skillful at writing such objectives.

Understanding Theoretical Considerations in Formulating Objectives. In this section, it is sought to have the trainee develop an understanding of the relationship between broad societal goals for education, intermediate educational aims, and teacher devised instructional objectives. Knowledge of such relationships enables the teacher to effectively formulate instructional objectives which represent steps toward achievement of larger educational aims and broad societal goals. The trainee must also understand the relationship of learner characteristics to instructional objectives.

Translating Broad Goals and Educational Aims into Instructional Objectives. This section suggests the type of practice which must be provided so that the trainee can develop a beginning level of competence in translating broad goals and educational aims into instructional objectives which are appropriate for specific learners.

Stating Objectives in Behavioral Terms

ENABLING OBJECTIVES	PROTOTYPE TEACHER BEHAVIORS	EXPERIENCE (Code)
1. Knowledge of categories, of behavioral events (e.g., observing, describing, knowing, etc.)	1. Given listings of random behavioral events, the trainee will organize them into recognized behavior categories.	Lct,Dsc, IS,Wr, Cmp
2. Knowledge of specific terms which refer to observable overt behavior such as "name," "describe," "state," "analyze," "employ,". . .	2. Given a list of behaviorally stated objectives, the trainee will identify the terms which specify the behavior outcome described.	Lct,Dsc, IS,Wr, Cmp
3. Knowledge of the basic elements of a behaviorally stated objective: a. the behavior outcome expected b. the object or content of the objective c. the criteria for successful attainment	3. Given sets of objectives, the trainee will select those which include all elements of behaviorally stated objectives.	Lct,Dsc, IS,Wr, Cmp
4. Ability to write behaviorally stated objectives	4. Given a description of a behavioral task, the trainee will formulate appropriate objectives, each of which will	Lct,Is, SmO,Wr

	contain a clear statement of the behavior outcome, the content, and the criterion level.	
5. Knowledge of a range of behaviors which refer primarily to cognitive events such as perceiving, generalizing, etc.	5. Given a set of behavioral objectives, the trainee will select those which refer to cognitive events.	Lct,IS, Dsc,Wr, Cmp
6. Knowledge of a range of behaviors which refer primarialy to affective events such as feelings, attitudes, etc.	6. Given a set of behavioral objectives, the trainee will select those which refer to affective events.	Lct,IS, Dsc,Wr, Cmp
7. Knowledge of a range of behaviors which give evidence of psychomotor skills such as balance, precision, coordination, etc.	7. Given a set of behavioral objectives, the trainee will select those which refer to psychomotor events.	Lct,IS, Dsc,Wr, Cmp
8. Ability to write behavioral objectives referring to cognitive, affective, and psychomotor events	8. Given specific cognitive, affective, and psychomotor behaviors, the trainee will write instructional objectives for each which embody the principles learned.	Lct,IS, SmO,Wr
9. An awareness of the importance of behavioral	9. Subsequent to meeting criteria in the area of content,	Dsc,Ocl, SmO,Wr

objectives in selecting and organizing content, strategy selection, and evaluating the outcomes of instruction	strategy, and evaluation, the trainee will respond in writing and/or orally to questions designed to assess his awareness of the use of behavioral objectives in the selection and organization of content, strategy selection, and evaluation of outcomes.	
	The trainee will utilize behavioral objectives for these purposes in various teaching situations in later stages of his program.	SmO,Tcl, Tsg,Tt
Understanding Theoretical Considerations in Formulating Objectives		
1. Knowledge of long-term or societal goals (sources of goal statements, etc.)	1. Given a list of goals, aims and objectives, the trainee will select those which are long-term objectives.	Lct,Dsc, IS,Wr, Cmp
2. Knowledge of intermediate type educational aims (curricular goal statements from guides, texts, handbooks, etc.)	2. Given a list of goals, aims, and objectives, the trainee will select those which are intermediate educational aims.	Lct,Dsc, IS,Wr, Cmp

3. Ability to relate instructional objectives to the broad goals and educational aims from which they were derived	3. Given a broad goal and/or educational aim, the trainee will select from several given instructional objectives those which are steps leading to attainment of larger goals.	Lct, Dsc,IS, Wr,Cmp
4. Knowledge of the dimensions of learner data which must serve as an information source in the formulation of objectives: a. diagnostic data - readiness factors, level of previous performance, competence in prerequisite behaviors b. anticipated rate factors - age, attitude, aptitude, motivation, attention level	4. Trainee will demonstrate knowledge of dimensions of learner data used in determination of appropriateness of behavioral objectives via written or oral responses to questions designed to test for this knowledge.	Lct, Dsc,IS, Wr
Translating Broad Goals and Educational Aims into Instructional Objectives		
1. Ability to recognize instructional objectives which are appropriate for use with a specific group	1. Trainees will specify criteria of selection and, given data on learners, will select from among given objectives those which best meet all criteria.	Lct,Dsc, Ocl,IS, Wr,Cmp

of learners, taking into account: a. readiness of pupils for performance b. concreteness or abstractness demanded by pupil stage of development c. prerequisite pupil knowledge or skill		
2. Ability to write instructional objectives which represent steps toward the attainment of broad goals and/or educational aims, taking into account pupil data factors	2. Given data on learners, specific goals or aims, the trainee will write behaviorally stated instructional objectives which best meet criteria above and represent logically and instructionally defensible steps toward the goals or aims.	SmO,Wr
3. Ability to plan instructional episodes in which intended outcomes are described in terms of behavioral objectives in several content areas and on appropriate levels of learner development	3. The trainee will demonstrate the use of such planning during periods of teaching responsibility.	SmO, Tcl, Tsg,Tt

BEHAVIOR TWO: SELECTION AND ORGANIZATION OF CONTENT

The teacher will select and organize content appropriate to specified objectives in a manner consistent with both the logic of the content itself and the psychological demands of the learner.

This section concentrates on principles of selection and organization which have utility across all areas of the elementary curriculum. Prerequisite experience with other teacher behavior objectives should assure that the student has previously attained a knowledge of typical learner characteristics, the nature and specification of behavioral objectives, and the subject content under consideration. The sequence needs to provide experiences leading the trainee to develop a knowledge of principles of selection and organization, to extensively analyze current curriculum materials on the basis of such principles, and to develop skill in selecting and organizing content for specific learners.

Abstract

Understanding Principles of Selection and Organization. This section suggests objectives which are intended to equip the trainee with knowledge of basic principles of selecting and organizing content for instruction. Selection is based primarily upon specific instructional objectives, with systematic consideration given to the availability of human and material resources and to demands of supra-classroom groups such as state guidlines. Organization, the determination of the scope and sequencing of selected content, is based on the logic of the content itself, modified where needed to suit the characteristics and needs of a particular group of learners.

Analyzing Current Curriculum Materials. A first step in the application of principles is the use of the principles in the analysis of existing examples of prepared content for learners. This section lists a series of objectives which suggest the provision of extensive experience with current materials from all content areas. Much exploratory examination and a systematic analysis of such materials using principles learned will serve as an important intermediary experience leading to the actual selection and organization of content.

Selecting and Organizing Content. Even prior to major synthesis experiences, the trainee can be given structured situations which provide in simulated fashion the variables for which a teacher must account in selecting and organizing content. During this phase of the program, the trainee will make application of principles by actually selecting and organizing content when given simulated data on learners and specific instructional objectives to achieve with these learners.

Understanding Principles of Selection and Organization

ENABLING OBJECTIVES	PROTOTYPE TEACHER BEHAVIORS	EXPERIENCE (CODE)
1. Knowledge of bases for selection as: a. the demand of a specific instructional objective b. the characteristics of the learner for whom the objective is intended c. demands of supra-classroom sources (state guidelines, etc.) d. availability of resources, human and material	1. The trainee will demonstrate his knowledge of bases of content selection via written responses to association type questions designed to test for this knowledge.	IS, Wr, Lct, Dsc
2. Knowledge of principles of organization of content areas: a. the logic of the particular content selected as a basis for sequencing b. psychological considerations such as pupil background knowledge, learn-styles, handicaps, etc., as a basis for determining depth and complexity of content.	2. The trainee will demonstrate his knowledge of bases of content organization via written responses to recall, association, and ordering type questions designed to test for this knowledge.	IS, Wr, Lct Dsc

Analyzing Current Curriculum Materials

1. Knowledge of extensive curriculum materials in several areas	1. Given extensive curriculum materials (tests, content packages, etc.) to examine, the trainee will demonstrate his knowledge of the availability and content of such materials via recall and association responses to the satisfaction of those faculty responsible for instruction in particular content areas.	IS, Wr, LAV, Dsc, Prj, Prs
2. Ability to systematically analyze texts and content packages according to learned principles of selection and organization	2. Given specific texts and content packages, the trainee will utilize principles of selection and organization as a basis for a systematic written analysis of these materials.	IS, Wr, LAV Dsc, Prj

Selecting and Organizing Content

1. Ability to select content utilizing a knowledge of principles learned	1. The trainee will demonstrate his ability to use bases of selection via response in such	IS, Wr, LAV, Prj, Prs, SmO

	simulated situations as: a. Given descriptions of content, he will select from a list of instructional objectives those for which particular content is appropriate. b. Given descriptions of content and data on learners, he will select that content appropriate for particular learners. c. Given descriptions of several packages of content, he will select the one which most nearly meets content demands, simulated state or district guidelines. d. Given the option of several choices of content, he will select for theoretical use the one for which he is best prepared to teach.	
2. Ability to organize content for instruction utilizing a knowledge of principles learned	2. The trainee will demonstrate his ability to use principles or organizing content via responses in simulated situations.	IS, Wr, Dsc, Prj, Prs, SmO, SmP

	a. Given a choice of segments of content appropriate to his area of specialization, he will arrange a particular set of information, concepts, and/or skills in a developmental sequence which is logical and defensible in accordance with the disciplinary structure involved. b. Given a summary of an extensive segment of content relating to the attainment of a specific objection, he will limit the scope of content to be used (depth, complexity, level of abstraction, descriptive examples needed, and anticipated pacing) as appropriate to information available on a simulated set of learners.	
3. Ability to utilize same content for more than one instructional objective	3. Given a summary description of a content segment and the instructional objective for which it serves as a medium, the trainee will select from a statement of other instructional objectives several which could be achieved through the use of the content.	IS, Wr, Dsc, Prj

4. Ability to select and organize content for instruction in real teaching situations	4. The trainee will demonstrate his ability to synthesize and utilize skills of selecting and organizing in various teaching situations throughout the training program.	Wr, SmP, Teg, Tel

BEHAVIOR THREE: INSTRUCTIONAL STRATEGIES

The teacher will employ appropriate strategies for the attainment of desired behavioral objectives.

A strategy should assist the learner to acquire measurable behaviors, subject to evaluation based upon preset criteria. The interactions by which the teacher controls student contacts with subject matter are considered teaching strategies, thus defined as techniques of instructional interactions.

The terminal task of choosing and implementing strategies is complicated by the impact of the demands of specific objectives and by situational and learner variables. This complexity is reduced in the training plan of the model because strategies are treated as transferable across subject matter content. This tends to avoid duplication where none should exist and also assists conceptualization and generalization of teaching tasks. Relationships between the instructional use of a medium (including the teacher himself) and specific objectives is always a problem of congruence. Separation of strategies from subject content itself is done for the purpose of training expedience; training in the application and organization of principles needed to integrate other elements of the learning situation will be done in a carefully sequenced fashion, culminating in gradually more complex approximations of the total teaching act.

Since transfer is a major goal of the program, trainee interaction experiences with learners will involve material from a variety of subject matter areas.

The program sequence for this major behavior category follows a logical pattern which begins with a theoretical orientation; proceeds to analysis and practice of a variety of single strategies in several content areas; then, gives training in the process of selecting media and matching to other elements; and finally provides opportunities to integrate the individual skills with others, in a series of synthesizing experiences.

Abstract

Understanding Theory Related to Strategy Selection. A basic assumption of this model is that a logical analysis of learner status, goals, and selected content at any specific point in time can direct a teacher to the best strategies (techniques of instructional interaction) for teaching a learner a specified objective or arranging for some other learning outcome. The trainee will need a theoretical background (including knowledge and comprehension of developmental theories, learning principles, conditions of learning, and learning disabilities) which will strengthen his basic understanding of the nature of learning, along with experiences which will give direct and immediate practice in methods of empirical verification and techniques of logical analysis. The choice and description of teacher strategies can thus be viewed as an objective matter, subject to constant verification, and dependent upon variables related to the nature of the learner, the learning activity, and the intended outcome. The conceptualization of strategies as techniques which are independent of subject matter variables will be developed through experiences such as identifying similarities in certain kinds of concepts in various content areas, observing and experiencing the teaching of a variety of concepts and rules across subject matter areas (science, language arts, social studies, math, and so forth). Strategy selection should be independent of variables such as teacher personality and teaching "style" (which are value loaded and remain a matter of individual interpretation). Exposure to differential modeling of selected strategy techniques during observation and microteaching activities can serve to demonstrate this.

Analyzing and Practicing Strategic Moves. The two major categories of strategic moves through which the teacher can arrange a learning experience are:

1. interactions involving non-personal media (including printed matter, pictures, objects, and environmental features), and

2. interpersonal experiences (including functional reinforcement interactions as well as verbal and non-verbal instructional interactions).

Interactions involving reinforcement techniques may be used either in instructional situations related to specific objectives, or in functional interactions related to classroom management. Analysis of the nature of each individual strategic move will be followed by opportunities to practice such moves in appropriate contexts, and later to integrate several moves into a more complex blending of techniques with other teacher behaviors (formulating objectives, selecting content, etc.) in a controlled situation.

Selecting Strategies. Having had an orientation to the problems of strategy selection, and a wide variety of opportunities to observe and practice individual techniques as well as combinations of several techniques, the trainee is ready to analyze the relationship between the instructional use of a medium and a specific objective, to gain insight into the processes of media selection, and to gain experience in how to choose strategies, implement the strategic moves, evaluate their effect on the learner and revise strategies based upon evaluation. At this point, synthesis of several behaviors will be involved, as the trainee must also select content, or analyze objectives, or formulate objectives, or analyze learner status, in order to determine and then justify his choice of strategic moves.

Executing Strategies. During a period of teaching responsibility, the trainee will practice, in a variety of content fields and with a range of learning and learner variables, techniques for selecting and implementing a wide variety of teaching strategies involving both non-personal and interpersonal interactive media. This practice will also require synthesis of skills in other teacher behavior tasks, with gradually increasing responsibilities and performance criteria set at a gradually increasing level.

PART ONE: Understanding Theory Related to Strategy Selection

ENABLING OBJECTIVES	PROTOTYPE TEACHER BEHAVIORS	EXPERIENCE (CODE)
1. Knowledge of developmental theories and principles of child development in the following areas: a. physical and motor development b. cognitive development c. language development d. social development	1. Given a description of the leading theories, the trainee will categorize each according to the area of development with which it deals, and list the elements which help to identify the association.	IS, Wr, Dsc
2. Ability to apply knowledge of developmental theories	2. The trainee will observe teaching demonstrations in which objectives involve such areas as: a. small muscle skills; b. conservation of volume; c. game rules; and d. reading readiness activities. He will identify the theories whose applications are best illustrated in each demonstration.	SmO Ocl, Dsc, Prj, Prs

3. Knowledge of learning principles relating to changes in behavior not ascribable to growth or maturation	3. Trainee will demonstrate knowledge of learning principles based on leading theories through written or oral responses to exercises designed to test such knowledge.	IS, Wr, Dsc
4. Ability to apply knowledge of learning principles	4. The trainee will observe and participate in teaching demonstrations illustrating application of selected principles. He will identify the principles illustrated in each demonstration and suggest additional applications.	SmO, SmP, Ocl, Int, Tsg
5. Knowledge of types of learning difficulties and ability to recognize behavior which indicates the nature of the difficulty (areas to include difficulties related to visual, auditory, speech, and mental retardation problems; emotional and social problems; chronic inappropriate behavioral problems, etc.)	5. Using a standard reference as a source, the trainee will list and describe behavioral indices of learning problems which interfere with normal learning. Using a behavioral checklist developed as a group project, the trainee will observe simulated classroom scenes in which children with difficulties are shown, identify behaviors which indicate difficulties, and describe the general area and nature of the learning problem.	IS, Wr, Dsc, Prj, Prs, SmO, SmP

6. Knowledge of a system for describing types of learning in terms of the following categories: signal learning, stimulus-response, chaining, verbal association, multiple discriminations, concepts, principles, and problem solving (Gagne, 1965)	6. Trainee will demonstrate knowledge of eight types of learning through written or oral responses to questions or exercises designed to test such knowledge. (See Appendix F for descriptions.)	IS, Wr, Dsc, Prs
7. Ability to apply knowledge of types of learning to an instructional situation	7.. Given a selected list of behavioral objectives, in each of several subject matter areas, the trainee will identify and analyze the types of learning involved in acquisition of each behavior. The trainee will observe and participate in production of simulated lessons demonstrating the teaching of objectives involving each type of learning, correctly identifying or illustrating each type.	IS, SmO, SmP, Prs
8. Ability to discriminate between external environmental conditions affecting learning (those under the control of the teacher) and the conditions within the learner	8. Given a list of terms, he will identify and label those which describe internal learner conditions (referring to behavioral indications of readiness of motivation, etc.) and those which	IS, Wr, Dsc, Prs

	refer to external phenomena (types of non-personal media, verbal and non-verbal interactions, etc.).	
9. Knowledge of functions which may be served by external learning conditions under the control of a teacher	9. The trainee will list and describe the following functions: presenting the stimulus, directing the action or attention of the learner; providing a model for terminal performance; furnishing external prompts; guiding the direction of thinking; inducing transfer of knowledge; assessing learner attainments; and providing feedback to learner. (See Appendix F for description and reference.)	IS,Wr, Dsc,Prj, Prs
10. Ability to apply knowledge of instructional functions by demonstrating each in an instructional situation	10. The trainee will observe and participate in demonstration lessons in which verbal and non-verbal behavior of the teacher and the use of non-personal media provide external conditions which serve each of the functions listed above in (8).	SmO,SmP, Tsg,Int

11. Knowledge of principles and techniques used in a system based upon methods of functional reinforcement	11. Given a set of questions designed to test such knowledge, he will demonstrate knowledge of principles, terms, and techniques used in behavior modification procedures. (See Appendix F for selected references.)	IS,Wr, LAV,Dsc
12. Ability to apply principles of functional reinforcement in a controlled situation	12. Given a review of principles and procedures used in shaping behavior, he will demonstrate ability to apply principles in a demonstration of the use of behavior modification techniques in reducing the incidence of inappropriate behavior in a classroom, he will describe and analyze observed events in terms of the behavior modification model. (See Appendix F for references.)	IS,Dsc, LAV,SmO, Ocl,Dsc, Prs

13. Ability to recognize and classify types of instructional interactions a. strategies involving non-personal media b. strategies involving inter-personal experiences	13. Given a descriptive list of teacher strategies, he will classify each one correctly according to the category to which it belongs. Given a list of references which are sources in information on teacher strategies, he will use references to develop a descriptive list which supplements existing lists.	IS,Wr, Dsc,Prj, Prs
PART TWO: Analyzing and Practicing Strategic Moves		
1. Ability to use non-personal materials and equipment to mediate instructional activities	1.	
a. Knowledge of the principles of programmed instruction	a. The trainee will demonstrate a knowledge of programmed instruction by listing the four basic principles underlying the technique. Given a programmed lesson the trainee will illustrate the use of each principle.	IS,Wr, Dsc,Prj

b. Knowledge of programmed instruction terminology	b. He will differentiate among the following: hardware, software, frame, response, response mechanisms, feedback, branching program, linear program.	
c. Ability to differentiate and use types of teaching machines	c. Given a list he will be able to categorize models, demonstrate competence in the use of two, and list a variety of different types.	LAV,Prs, Ocl
d. Ability to utilize a terminal for Computer Assisted Instruction (CAI)	d. He will perform acceptably on a CAI orientation program demonstrating ability to sign on and off and make designated terminal responses via light pen and keyboard.	Cmp
e. Ability to apply principles of programming to mediate instructional content	e. Given a small unit content in a designated area of the elementary school curriculum he will develop an acceptable programmed instructional sequence.	IS,Wr, Prj
f. Ability to identify and operate audiovisual equipment	f. He will identify the following types of equipment: film and slide projectors, motion picture cameras,	LAV

	opaque and overhead projectors, sound amplifiers, micriphones and earphones, audio-tape and videotape, recorders, T.V., radio receivers, duplicators and copiers.	
	He will demonstrate ability to set up each piece of equipment, handle auxiliary materials (screens, amplifiers, etc.) turn-ons, turn-offs, and assembling for storage and non-operation.	LAV
g. Knowledge of and ability to use sources of information about media material and equipment	g. He will demonstrate competence in handling the information utilization and retrieval methods employed by the library or media center. He will demonstrate competence in using reference materials (such as catalog, guidebooks, manuals, etc.) relating to equipment and instructional materials.	IS,Wr, LAV,Int, Prj
h. Knowledge of and ability to use the services of a quilified educational media specialist	h. Given a description of certification standards for an educational media specialist, he will list and describe the ways in	IS,Wr

	which such a person would be of assistance to a trainee. Using interview or literature search techniques, he will develop a descriptive list of ways in which a media specialist could assist an elementary teacher.	IS,Wr, Int,Prj
i. Knowledge of the broad range of types of non-personal media	i. He will list and describe the various types of printed media; CAI programs, T.V., still and moving pictures, three-dimensional material such as models, lab equipment, and realia; audio; manipulative, and productive media. (See Appendix F for a more complete list.)	IS,Wr, LAV,Dec, Prj
j. Knowledge of and ability to apply criteria for evaluating the quality and relevance of media materials	j. He will participate in a project to develop a manual which describes standards for evaluating the quality of films, filmstrips, charts, models, pictures, maps, transparencies, books, programs and other materials with instructional content or purpose, and lists criteria for	IS,Wr, LAV,Dec, Prj

	determining the relevance of a given sample of material to a given instructional situation.	
k. Ability to apply principles related to quality and relevance in the production of media materials or production techniques	k. He will design and construct a variety of materials, including transparencies, chart models, slides, photographs, lab equipment, etc., which meet specified criteria of quality and relevance.	LAV, Prj
l. Knowledge of conditions in which a specialized environment can be used as a medium of instruction	l. He will participate in a real or simulated field trip experience involving a group of children, and analyze the experience in terms of a given set of curricular guide lines.	OO,SmO, Dsc,IS, Wr,Prj,
m. Ability to use each category of non-personal media effectively for an instructional purpose	m. Using a micro-teaching or simulated classroom teaching setting, the trainee will demonstrate ability to use equipment and material from each of the categories of non-personal media, satisfying criteria established as indicative of effective performance.	Wr,Tsg, SmP,Dsc, Int

2. Ability to use strategies involving interpersonal experiences	2.	
a. Ability to apply knowledge of functional reinforcement techniques in a classroom situation 1. for a purpose related to classroom management 2. for a purpose related to an instructional goal	a. The trainee will participate in a group project to plan, implement, and evaluate a strategy using behavior modification techniques to deal with inappropriate behavior in actual classroom or other school setting.	IS,Wr, Dsc,Prj, Int,Ocl, Tsg,Tcl
	The trainee will demonstrate ability to use reinforcement techniques for an instructional purpose by using techniques effectively in a micro-teaching task.	Wr,Tsg, Int
b. Ability to analyze strategies relating to categories of verbal interaction patterns, using a given system	b. Using a system such as the one described in a currently used study of the teaching of strategies, (see Appendix F for suggested references) the trainee will define, describe, and state the criteria for classifying types of verbal interactive patterns employed in a classroom discourse. Given a set of descriptions, audiotaped	IS,Wr, Dsc,Prj, Int,Prs, SmO,SmP

	or video taped simulations of verbal interactions, he will correctly classify each type according to the system.	
c. Ability to employ each type of pattern for an instructional purpose	c. The trainee will teach micro-lessons demonstrating ability to employ each type of pattern for an instructional purpose.	Wr,Tsg, Int
d. Ability to use strategies involving the arrangement of group interactions among students	d. The trainee will teach micro-lessons in which students work in groups on a common task, make group decisions, plan an activity, produce written work, and similar activities.	Wr,Tsg, Int
e. Ability to use strategies involving the use of rhythm and patterning in verbal presentation	e. The trainee will teach micro-lessons which demonstrate the use of rhythm with rigid repetition for rote memory work, with variation of key words, student fill-in of key words, unison responses from small groups, verbal presentation with music or singing, and so forth.	Wr,Tsg, Int

f. Ability to use strategies involving the use of dramatic techniques 1. role playing (developing character) 2. creating an environment through verbal presentation 3. use of body movement and pantomime 4. storytelling 5. reading and recitation	f. The trainee will teach micro-lessons demonstrating the ability to use each of the listed dramatic techniques effectively, in several content areas.	Wr,Tsg, Int
g. Ability to use strategies designed to implement objectives involving divergent thinking	g. Given objectives in several content areas involving divergent thinking, he will use strategies which cause student to exhibit unique responses. Suggested objectives may be in the area of social studies (unique interpretation of events), language arts (creative writing), art (interpreting paintings), etc. (For suggested techniques see Appendix F.)	Wr,Tsg, Int

h. Ability to use strategies designed to implement objectives involving convergent thinking	h. Given objectives involving convergent thinking, the trainee will evoke student behavior giving evidence of convergent thinking in several subject matter areas. (Suggested areas include math algorithms, logical interpretations of science observations, vocabulary work in language arts, cause and effect relationships in social studies, etc. (For suggested techniques see Appendix F.)	SmO,Tt, Tsg, Tcl
i. Ability to use strategies designed to implement objectives involving cognitive memory	i. Given objectives involving cognitive memory, the trainee will evoke student behavior giving evidence of cognitive memory in several subject matter areas. (See Appendix F. for suggested techniques.)	
j. Ability to use strategies involving evaluative thinking	j. Given objective involving evaluative thinking, the trainee will evoke student	SmO,Tt, Tsg,Tcl

	behavior giving evidence of evaluative thinking in several subject matter areas. (For suggested techniques see Appendix F.)	
3. Ability to use strategies integrating the use of non-personal media and inter-personal interactions with students who are using the media	3.	
a. Ability to use strategies to assist in classroom management situations (for supra-instructional purposes)	a. In a classroom or other school setting, the trainee will interact with individual children or small groups, demonstrating the ability to direct students in the use of tools or equipment, rearrange the furniture, plan for storage, or similar task.	SmO,Tt, Tsg
b. Ability to use strategies to assist in implementing instructional objectives	b. In a classroom or other school setting, the trainee will interact with students in some task related to fabrication of laboratory equipment, setting up a display, production of	Prs,SmO, Tt,Tsg, Tcl

	materials for use with audio-visual equipment, or other activity directly related to some instructional objective.	
	PART THREE -- Selecting Strategies	
1. Ability to use a procedure designed to choose media based upon behavioral objectives	1. Given selected intermediate objectives, in each content area, the trainee will formulate appropriate instructional objectives stated behaviorally; identify the type of learning involved in each objective; design a media program, listing media options; justify the options on the basis of the instructional function served by each one; and write specifications for the preparation or selection of media material (See Appendix F for description and references).	Wr, Prj, Int
2. Ability to implement a given media program	2. Given a media program designed by another trainee, he will prepare or select media and media material; interact with students or arrange	Wr, Cmp, SmO

	interactions of students with content through media; and evaluate the effectiveness of the instructional interaction.	
	PART FOUR -- Executing Strategies	
1. Ability to choose appropriate media, select and implement techniques of verbal and non-verbal interaction, and non-personal media, and evaluate results of the interactions in a classroom situation	1. Given a series of six-week programs in all content areas, the trainee will develop the units by writing behavioral objectives, choosing strategies, teaching in classrooms, and evaluating results.	IS, Wr, Int, Tsg, Tcl, Dsc
2. Ability to restructure and reapply on the basis of prior experience and evaluation	2. Given situations in which evaluation indicates that learners did not achieve objectives the trainee will pinpoint difficulties relating to strategies, revise and reteach.	Wr, Int, Tcl, Dsc

BEHAVIOR FOUR: EVALUATION SKILLS AND TECHNIQUES

The teacher will evaluate learning

outcomes on the basis of changes

of behavior.

Experiences are sequenced to provide the trainee with a background of basic principles of measurement, with skills for observing and measuring behavior, and with an orientation to the relationship between evaluative procedures and a range of instructional objectives.

Following acquisition of this background and within the context of many kinds of instructional situations, the trainee will be given practice in selecting, administering, and using the results of a variety of techniques and kinds of evaluative data.

Abstract

Comprehending and Applying Psychometric Principles, Statistics, and Standardized Testing Procedures. The beginning teacher will need to have a reasonable familiarity with the basic concepts and principles commonly used in educational testing, a usable knowledge of statistics, and a reasonable degree of skill in elementary testing and measurement. Some psychometric principles, basic statistical concepts, and certain testing procedures, as well as knowledge of standard instruments, will be useful to the kinds of evaluative activities in which a beginning elementary school teacher will engage.

Observing and Measuring Behavior. To evaluate changes in behavior, a teacher needs skill in observing behavior. One important prerequisite for this skill is practice in observing, classifying, and quantifying reliably the behavior of children of various ages and descriptions, in groups of various sizes, engaged in a variety of activities. Training in the use of a given observational system and in procedures for recording the facts of observation in brief objective terms is part of the practice.

Relating Evaluation to Planned Objectives. The teacher's major concern in evaluation is deciding what learning outcomes, if any, have occurred as a result of experiences he has planned for his students. This type of evaluation is enhanced by the use of behaviorally stated objectives. In order to relate evaluation to these, teachers will need the ability to discriminate among significantly different kinds of outcomes, to recognize behaviors related to each kind of outcome, and to realize that criterion performance can range from imitating a ritualized action or memorizing a set of numbers to producing an original art form or a unique interpretation.

Interpreting Evaluative Data. Skill in interpreting data is closely allied with skill in planning objectives and carrying out strategies. Use of instruments and techniques involving verbal interaction is a part of this, as is judgement in weighing data, and knowledge of the appropriate and legitimate uses of evaluative information.

Practicing Evaluative Techniques. Experiences in selecting, constructing, describing, administering, recording, and utilizing the results of evaluative procedures in classroom settings will sharpen skills. Supervised practice in each curricular area will help develop acceptance of the value of consistently using knowledge and skills already learned, and of seeking to improve individual competence through self-evaluation and ideas from others.

PART ONE:
Comprehending and Applying Psychometric Principles, Statistics, and Standardized Testing

ENABLING OBJECTIVES	PROTOTYPE TEACHER BEHAVIORS	EXPERIENCE (CODE)
1. Knowledge of functions of educational testing a. assessment, prediction, and trait measurement b. achievement, attitude, and aptitude measurement c. diagnosis, learner feedback, and program evaluation	1. Trainee will define each term and give examples of situations or practices illustrating each of the functions.	IS, Cmp, Wr, Lct, Dsc
2. Comprehension and application of basic concepts, principles and statistical techniques used in educational testing* a. probability b. reliability and validity c. treatment of test scores d. correlation e. simple item analysis * See Appendix G for more complete description	2. Given a set of terms relating to each area, he will supply or identify correct definitions for each. Given a set of test scores, he will perform specified operations correctly. Given an examination on specified areas, he will perform acceptably.	IS, Cmp, Wr, LAV, Lct, Dsc

3. Comprehension and application of principles relating to construction of common types of objective and essay test items	3. He will discuss principles and list criteria for evaluation of items. He will construct examples which fulfill criteria for each type of item, and will revise items which do not meet criteria.	IS, Wr, Prj
4. Knowledge of rationale, organization, and representative content of one or more recognized examples of each of the following tests:	4. He will examine and describe, for each category, one or more of the following or equivalent instruments:	IS, Wr, Dsc, Prj
a. comprehensive achievement tests	a. California Achievement Tests, Iowa Tests of Basic Skills, Metropolitan Achievement Tests, Stanford Achievement Tests;	
b. tests of achievement in specialized areas	b. Durrell-Sullivan Reading Capacity and Achievement Tests, Gates Basic Reading Test, Iowa Silent Reading Test;	
c. tests of general mental abilities	c. Chicago Non-verbal Examination, Otis Quick-Scoring Mental Ability Test, SRA Tests of Educational Ability;	

d. attitude and interest inventories e. personality and adjustment inventories	d. Brainerd Occupational Preference Inventory, Kuder Preference Record; and e. California Test of Personality, Mooney Problem Checklist, SRA Junior Inventory.	
5. Ability to recognize the purpose of a variety of commercially available tests, and to classify each as to function	5. Given fifteen commercially prepared tests of various types, he will describe the basic purpose of each one, and classify each as to its function.	IS, Wr, Prj
6. Knowledge and ability to apply principles related to administration and scoring of standardized tests	6. He will administer a standardized test to a group of persons, observing rules related to methods of distributing tests, giving directions, arranging the environment, monitoring, observing time limits, collecting and scoring.	IS, Prs, SmP
7. Ability to distinguish between norm-referenced and criterion-referenced measures	7. Given descriptions and examples of several measures, he will distinguish those which are used to evaluate a student's performance with respect to	IS, Dsc

	some task (criterion-reference from those which rate and compare one student's score with that of other children (norm-reference).	
8. Ability to distinguish between instruments and items supplying data describing characteristics of a child and those which give measures of performance related to skills or knowledge	8. Given several sets of items and instruments (either commercially constructed or constructed by trainees) he will identify those which will supply information on learner characteristics (personality, attitude, interest, etc.) and distinguish them from those which will measure performance of some task related to skills or knowledge.	IS, Dsc
PART TWO: Observing and Measuring Behavior		
1. Ability to interpret the role of value judgements in evaluating learner characteristics and measuring learner performance	1. He will discuss and define the distinction between testing and evaluating: describe the problems of validity related to descriptive measurement and testing; and discuss each of the major types of tests with	IS, Wr, Prj

	respect to the role of value judgements in constructing items and interpreting results.	
2. Knowledge of leading developmental theories and descriptions of growth patterns in children and analysis of the relationship of such descriptions to evaluation	2. He will discuss and describe the work of leading developmental theorists (see STRATEGIES section for more complete description) and analyze its relationship to problems of evaluating changes in behavior.	IS, Lct, Dsc, Prs, Prj
3. Ability to use a simple instrument for estimating the developmental level of children at various stages	3. Given a list of characteristics of children at selected levels of development and several children, he will judge the developmental level of each child, and support his judgement by listing the characteristics which he observed.	IS, OO, or Ocl
4. Ability to distinguish facts of observation from inferences or guesses	4. Given ten selected anecdotal reports of data from an observational session, he will distinguish those which record facts of observation from those which infer motives, use inferential terms, have a low degree of agreement with other reports, etc.	IS, Wr

5. Ability to record observational data in anecdotal form, using terms which are objective and verifiable	5. He will observe a series of classroom lessons and record observations in anecdotal form, using terms which are objective and verifiable by comparison with a prepared record done by an expert observer.	Ocl, or SmO
6. Ability to observe, classify, and quantify behavioral events using an instrument with a high degree of inter-rater reliability	6. Given an observational system, he will observe, classify, and quantify behaviors reliably during a series of observational sessions in a classroom setting.	Ocl or SmO

PART THREE: Relating Evaluation to Planned Objectives

1. Comprehension and analysis of a system which organizes educational objectives and relates objectives to evaluative items and procedures	1. He will read, discuss and demonstrate ability to interpret, apply, and analyze principles incorporated in the Taxonomy of Educational Objectives Parts I and II: (Bloom, et al, 1956 and Krathwohl, et al, 1964).	IS, Wr, Prj

2. Ability to analyze terms commonly used in specification of educational objectives, and to identify those which describe learner outcomes which are stated in terms of behavior that can be observed and measured	2. Given a list of fifty terms, he will identify those which refer to measurable behavior, suggest alternatives for those which are ambiguous, and describe ways of evaluating each type of behavior.	IS, Wr, Dsc, Prj
3. Ability to discriminate among significantly different kinds of learning outcomes, and to identify behaviors relating to each type of outcome a. outcomes in cognitive, affective and psychomotor areas b. outcomes related to academic achievement c. outcomes related to social and personal adjustment	3. Given a set of objectives which deal with outcomes related to academic achievement in cognitive, affective, and psychomotor areas, and with social and personal adjustment in each area, he will describe behaviors which will give evidence of events in each area. Given a series of observational sessions in which children display behavior giving evidence of learning outcomes in each of the areas, he will identify the behavior and suggest the area in which the learning outcome might be classified.	Ocl, SmO, Dsc, Prj
4. Ability to analyze, describe and give examples to illustrate the relationship between terms used in educational objectives and the	4. He will discuss and describe the rationale supporting the practice of formulating educational objectives in terms of behavior which is observable.	IS, Wr, Dsc, Prj

precision with which outcomes can be evaluated	Given a set of behavioral objectives dealing with expected outcomes in each content area, for several levels of development (primary, intermediate, and upper) and for each type of learning outcome listed above, he will construct test items or describe procedures by which each objective could be measured.	
PART FOUR: Interpreting Evaluative Data		
1. Ability to identify and construct instruments such as checklists, rating scales, and product scales useful for recording data relating to learning outcomes, and to list appropriate uses for each	1. He will describe and construct examples of each type of instrument and list appropriate uses for each.	IS, LAV, Prj
2. Ability to obtain and impart information useful for evaluative purposes by means of an interview, discussion, or informal verbal interaction and describe appropriate uses for the data	2. He will obtain and impart evaluative data by conducting an interview, discussion, or engaging in an informal verbal interaction. He will record the data and discuss its uses.	Int, Dsc, SmP, Tt, Tsg

3. Ability to describe and analyze ways of interpreting and using evaluative data	3. He will describe and analyze ways of interpreting and using data by contributing and assisting in the production of a manual which describes and discusses uses for sample commercial and teacher made tests or measuring procedures in each subject matter area, for a variety of learning outcomes, at several developmental levels, for areas of social and personal adjustment in the elementary school, for classroom management purposes, and for other related activities. Included will be criteria for weighing data, discussion of use of norms and description of methods of summarizing, collapsing, and reporting information.	Int, IS, Wr, Dsc, Prj
PART FIVE: Practicing Evaluative Techniques		
1. Skill in selecting or constructing appropriate instruments and using appropriate techniques for evaluating specific instructional objectives formulated for use	1. During a period of teaching responsibility, he will select, construct, or describe instruments or techniques for use in the various teaching situations described.	IS, Wr, Int, LAV, Prj

in determining the outcomes of instruction in a variety of situations a. in each major content area b. for each of several developmental levels c. for individual children, small groups, and classes d. for outcomes related to cognitive, affective, and psychomotor areas		
2. Skill in administering instruments and applying techniques for obtaining evaluative data relating to specific objectives a. in each major content area b. for each of several developmental levels c. for individual children, small groups, and classes d. for outcomes related to cognitive, affective, and psychomotor areas	2. During a period of teaching responsibility, he will administer instruments and apply techniques in each of the situations described. He will demonstrate skill in revising instruments or techniques when necessary data are not obtained.	Tt, Tsg, Tcl
3. Skill in recording data from classroom or other observation in a form which is	3. During a period of teaching responsibility, he will record observations of children's	Ocl, Tt, Tsg, Tcl

brief but conveys relevant factual information about the behavior or a child or group of children	behavior in a form which is brief, efficient, and useful for purposes related to diagnosis of learning difficulties, behavior and adjustment problems mediation, assessment of performance, planning, etc.	
4. Skill in administering a test using standardized test procedures	4. He will administer a test to a group of children, observing rules for method of distributing tests, giving directions, arranging environment, monitoring, observing time limits, collecting, and scoring.	Tag, Tcl
5. Skill in using evaluative data for a variety of purposes, including: a. diagnosis of the status of a child with respect to some learning problem or difficulty in social adjustment b. for determining progress with respect to a planned objective c. to compare a child or group of children with another group, or with a norm	5. During a period of teaching responsibility, he will demonstrate skill in using data for each of the purposes described.	Int, Tt, Tcl, Tag

d. to determine readiness or define a baseline e. to provide feedback to a learner as part of a strategic technique f. to improve a part of the instructional program, or in planning g. to inform a parent or another teacher of the progress or status of a learner		
6. Acceptance of the practice of gathering frequent data from formal and informal situations, and recording it in a brief objective form	6. During a period of teaching responsibility he will consistently record informal observation data and information such as scores, diagnostic summaries, etc., and demonstrate acceptance of the practice by such actions as: a. describing use of such data in specific instances; b. seeking assistance and offering suggestions on ways of improving methods of obtaining, recording, or using such data; and c. showing satisfaction in improvement and concern over problems related to gathering and recording data for evaluation.	Ocl, Wr, Int, OO, Tt, Tsg, Tcl

7. Acceptance of the practices of: a. specifying performance criteria in formulating objectives, whenever such criterion-referenced measures are appropriate b. evaluating on the basis of the behavior changes anticipated in the planning c. recording results in a form which is usable for necessary purposes d. recording unplanned outcomes and using this information for legitimate evaluative purposes e. looking for new methods of evaluating behavior which are more valid, reliable, precise, or useful	7. He will demonstrate acceptance or commitment toward the practices specified by consistently seeking ways of improving his skill in each one, by using each practice consistently, even when not required, and by recommending the practices to others.	LAV, Int, Ocl, Wr, Tsg, Tcl

BEHAVIOR FIVE: PROFESSIONAL RESPONSIBILITIES

The elementary teacher will demonstrate the competence and willingness to accept professional responsibilities and to serve as a professional leader.

A person who attains the requisite knowledge and skills to enable him to perform adequately the first four behaviors may be able to carry out in a minimal way those mechanical tasks which teacher roles of the next decade will demand. Much more is expected, however, of the professional teacher as conceptualized for this model program. This fifth broad behavior category may well be conceived as the qualitative dimension which sets the professional apart from the craftsman.

Based on the analysis of teaching in the decade ahead, the professional teacher is one who participates autonomously in the process of influencing decisions affecting education at all levels, while recognizing and utilizing the power of organized group efforts in this endeavor when appropriate. He will participate in the design of curriculum and make decisions relative to curriculum selection. Innovative when appropriate, he will share ideas about the conduct of his professional tasks and will communicate with colleagues beyond his day-to-day contacts by publication when his ideas are useful to many.

The professional teacher will read widely and will be a skillful interpreter of current events and relevant educational research. He will regularly modify his teaching performance in keeping with his interpretation of research results and systematic self-analysis of his own procedures. In both formal and informal ways, he will follow a continuous program of intellectual and professional growth.

The profession itself will also be a focus of the professional teacher's attention. He will participate with colleagues in collaborative efforts to improve the welfare and status of all in the profession. He will assume leadership in creating appropriate standards for entry into the teaching profession and will participate actively in maintaining standards of performance of those already teaching.

The professional teacher in the decade ahead will increasingly assume leadership roles in the wider community which are commensurate with his high level of training, knowledge, and interests. This community service will serve not only to lessen the intellectual and social gap between teachers and lay citizens, but also will provide an effective medium for informed dialogue about education.

If these then can be viewed as the dimensions of professionalism, it should also be recognized that performance in this manner represents a long range goal for experienced teachers. Total development of the attitudes necessary to pre-dispose a teacher to perform in this fashion cannot be expected as an outcome of a pre-service program. However, the impact of any training program will covertly result in the acquisition by trainees of initial patterns of attitudes toward professional behavior. It should therefore be a considered decision of those involved as trainers to perform as professionals at all times and to regularly explicate examples of professional and non-professional behavior in the performance of teaching.

In addition, there are prerequisite skills which a teacher must utilize to perform professional and leadership functions. It is not unrealistic to expect pre-service teachers to acquire these skills and to be keenly aware of the dimensions of professionalism.

Abstract

Being Aware of the Dimensions of Professionalism. The pre-service trainee has little opportunity to perform, even in practice, as a finished professional teacher. He can, nevertheless, become aware of the dimensions of professionalism through studying about teacher organizations, concepts of professional standards, curriculum development, public relations, and decision making, and by exploring the various roles which an autonomous teacher can play as he strives to be a professional. It is assumed that the trainee who demonstrates a knowledge of these things is at least minimally aware of the dimensions of professionalism.

Being Aware of Innovative Materials and Practices. It has been assumed that an awareness of the concept of innovation as applied to teaching must be preceded by a knowledge of sources of innovative materials and

practices. The pursuit of such knowledge is integrally related to skills developed under the heading of selection of content for which exposure to a wide variety of materials is essential. It is repeated here for analytical emphasis only since it will most probably be developed through program resource center work leading to the acquisition of other behaviors.

Applying Results of Educational Research. The professional teacher knows of current research which may influence teaching and the curriculum, and has sufficient skill to read and interpret research reports with comprehension. In this part, the pre-service trainee must learn about the terminology, conventions, and methodology of educational research, and can acquire some skill at reading, interpreting, evaluating, and utilizing research results.

Applying Self-Analysis Skills. Every good teacher can and does act as his own best critic. The trainee is expected to develop the ability to utilize techniques for systematic self-analysis of his instructional interaction, and to modify his teaching practices according to such analyses. These skills find regular use throughout all training phases of the model program, but especially in micro as well as full scale teaching practice.

Understanding Theories of Group Dynamics. In order for a teacher to behave at the highest professional level, he must interact effectively with other adults, both lay and professional. A pre-service phase of attaining this level of performance involves acquiring a knowledge of certain principles of group dynamics and theories of leadership behavior, and developing the abilities to participate in group discussion and to analyze the elements of problem situations involving personal interactions with other adult persons.

Being Aware of the Dimensions of Professionalism

ENABLING OBJECTIVES	PROTOTYPE TEACHER BEHAVIORS	EXPERIENCE (Code)
1. An awareness of the dimensions of professionalism	1. After exposure to various sources of information, the trainee will demonstrate via response to recall and association type questions a knowledge of: a. the history and current activities of professional education organizations; b. levels of educational control, i.e.--federal, state, and local; c. existing statements of professional standards for teachers; d. roles which the autonomous teacher can play in curriculum development, public relations, and educational decision making; and e. the concept of "teacher as an agent of change."	Lct,Prj, Cmp,Dsc, OO,SmO

Being Aware of Innovative Materials and Practices

1. Knowledge of sources of innovative materials and practices	1. The trainee will regularly utilize the program resource center, and will demonstrate his knowledge of sources as he proceeds to select and organize content, as he selects appropriate instructional strategies, and as he synthesizes these skills in teaching situations.	
	The trainee will utilize materials and practices from these types of sources: a. current curriculum projects; b. free and inexpensive materials; c. film and filmstrip libraries; and d. commercial sources.	LAV,IS, Dsc,Prj, SmO

Applying Results of Educational Research

1. Knowledge of the terminology, conventions, and methodology of educational research	1. The trainee will demonstrate a knowledge of research terminology indirectly by indicating	IS,Wr, Lct,Dsc

	comprehension of research reports read via response to comprehension tests of material covered. Given examples of correctly and incorrectly stated research conventions (such as the statement of a research hypothesis), the trainee will select those which meet criteria of corrections. The trainee will demonstrate a beginning level understanding of research methodology by preparing written paragraphs suitable for reading by lay persons explaining such ideas as: a. experimental vs. hypothesis generating research; b. independent and dependent variables; c. tests of significance; d. control of variables; and e. assumptions, hypotheses, conclusions.	
2. Knowledge of the range and sources of research-related literature useful to the classroom teacher	2. Given examples of a variety of literature, he will identify those which contain research related material useful to an elementary teacher.	IS,Wr, Dsc

3. Ability to read and interpret reports of research in education and related fields	3. Given research reports from appropriate professional journals, the trainee will prepare summary statements describing the research study, the principal findings, and the conclusions drawn.	IS,Wr, Dsc
4. Knowledge of criteria for evaluating credentials of sources of data	4. Given reports and educational articles in the mass media publications, the trainee will rank on the basis of given criteria those on which the greatest probability of reliability and validity exist.	IS,Wr, Dsc
5. Ability to analyze events of educational concern and to evaluate reports of these events as they appear in the mass media as well as certain professional journals	5. Given reports of current events related to education (such as "the recent decision of a school system to adopt non-grading"), the trainee will transfer and apply skills of analyzing research reports to evaluate these lay reports.	IS,Wr, Dsc
6. Ability to apply knowledge of research to practice involving his own instructional activities	6. Given relevant research reports, the trainee will select in simulated and real situations objectives, content, and strategies which are reflective of interpretations of the results of such research.	IS,Wr, Dsc,SmO, SmP,Ocl

Applying Self-Analysis Skills

1. Ability to analyze audio and/or video tapes of his own teaching	1. The trainee will code and analyze micro and full scale teaching performances using interaction analysis (Flanders, 1966), the Becker system (Becker, et al, 1967) or others.	Cmp,LAV, Dsc,Ocl, OO,Tsg, Tcl
2. Ability to modify teaching performance in light of self-analysis	2. The trainee will modify teaching performance in micro-teach--re-teach sequences; he will regularly modify full scale teaching practice performances as self-analysis dictates.	Tcl,Tsg

Understanding Theories of Group Dynamics

1. Knowledge of theories of social behavior and principles of group dynamics	1. He will discuss leading theories and list principles which apply in his own interactions with other adults in the training program.	IS,Wr, Dsc,Int, Prs
2. Ability to participate in a group discussion project as a contributing member and as a group leader	2. Given a group task situation, he will demonstrate ability to assist in the accomplishment of the task as a functioning member of the group	Dsc,Prs

	Given a group task situation in which he acts as group leader, he will perform acceptably.	
3. Ability to analyze elements of interpersonal relationships	3. Given video-tape of a group interaction session, he will demonstrate ability to analyze behaviors, interrelationships, and episodes viewed in the session.	SmO, Prs
	Given a simulated situation involving teacher-parent- and administrator interactions, he will describe and analyze elements of the relationships.	SmP
4. Ability to interact in group training situations, and to analyze elements of the interrelationships among group members	4. Given a group situation in which he participates, he will analyze events which occur in terms of the interpersonal relationships involved.	Dsc,Prs, Prj,Int
5. Ability to analyze a variety of problem situations involving teacher interactions with school personnel and school patrons, and to determine justifiable solutions	5. Given a series of video-tapes, films, and role-played situations, he will react, using a system such as the following: a. identify the problem; b. analyze problem elements; c. describe alternative courses of action;	SmO,Dsc, SmP,Prs

d. predict likely outcomes;
e. identify the most valid course;
f. justify his choice;
g. react to criticism of the choice; and
h. defend or modify his position.

CHAPTER VI

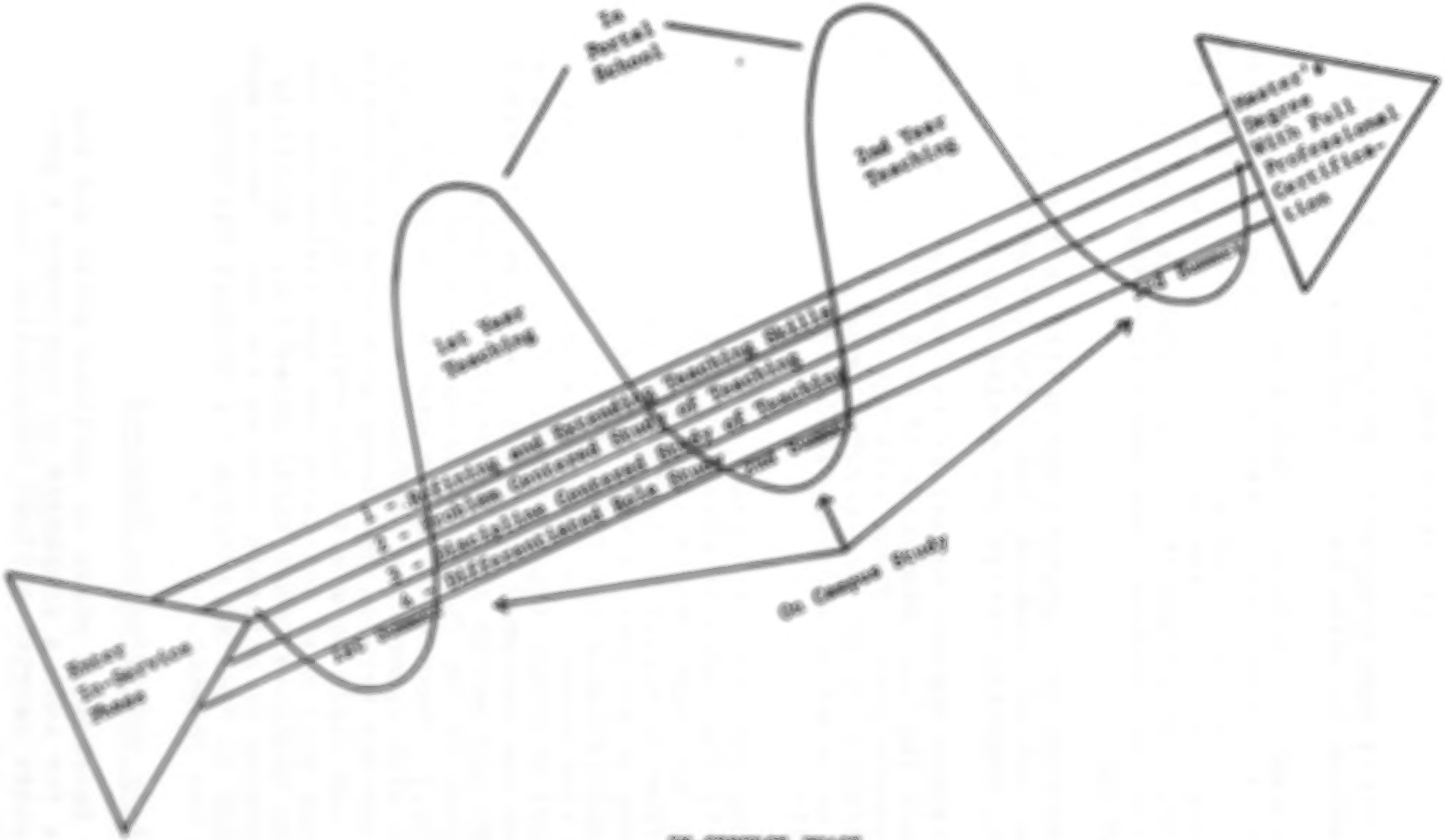
MODEL PROGRAM: IN-SERVICE PHASE

I. Introduction

This chapter describes specifications for the in-service phase of the model program. They are organized in two major parts: (1) work oriented towards practical problems in teaching which will be done during the regular school year; and (2) on-campus work during three summers designed to supplement and complement the already completed pre-service phase of the program. Figure 8 presents a diagram of the in-service phase.

The in-service phase is an essential part of the program. The model is so designed that to omit the in-service phase would jeopardize the total operation.

The following compelling reasons for including an in-service phase in the model program demand careful consideration by a university faculty desiring to design a preparation program that will have far reaching effects on elementary school teaching. First, a program which terminates when trainees complete the pre-service phase can at best do no more than prepare them to begin their teaching careers. Many important things about being a teacher can best be learned after the teaching experience itself has begun. Such learning should not be left to chance. Second, the erosion caused by day-to-day confrontations with hard reality in teaching can wear away the beginner's cutting edge of idealism and his commitment to innovative practices, unless there is a built-in plan of renewal. One of the major purposes of an in-service phase should be to provide that renewal. Third, new research findings in teaching and learning, new curriculum materials, and new tools for teaching constantly present challenges to current practices in elementary education. These need to be tested in practical situations by those who are concerned about what happens in the schools. Such tests must involve both theorists and practitioners lest the gap between them becomes intolerably wide. An in-service phase designed to the specifications of this model program can serve to keep schools and universities in supporting roles one to the other. It also involves new teachers as participants in field testing of new ideas, thus assuring early an effort toward a more positive kind of occupational socialization.


In Portal School
1st Year Teaching
2nd Year Teaching
Enter In-Service Phase
1 = Refining and Extending Teaching Skills
2 = Problem Centered Study of Teaching
3 = Discipline Centered Study of Teaching
4 = Differentiated Role Study
1st Summer
2nd Summer
3rd Summer
On Campus Study
Master's Degree With Full Professional Certification

IN-SERVICE PHASE

Figure 8

II. Field Work Program

The field work program is designed to give particular attention to three major objectives:

1. To expand concepts and improve skills already partially developed by trainees in the pre-service phase. Such concepts and skills relate to the role of the teacher in the teaching act, the nature of subject matter and its use in teaching, and preactive, interactive, and postactive aspects of teaching.

2. To develop new concepts and skills related to the total act of teaching, including instructional design, teaching skills and evaluation.

3. To extend teacher behaviors to include those necessary for the assumption of full professional responsibility. These will have been treated very indirectly in the pre-service phase. Here they can be observed and experienced directly in reality.

During the first two years of teaching, while still involved in the model program, the trainees will be less than full time teachers. Some of their time will be left free to engage in activities related to the above three objectives, and a university will need to provide specifically for the profitable use of the released time block. To help to insure this, at the local level selected teachers will be appointed as staff associates and assigned to assist the university staff with first and second year in-service trainees. (See Chapter IX for further information about staff associates.) These staff associates will work in cooperation with counseling professors whose assignments will be divided between on-campus work with pre-service trainees and field work with in-service trainees. Together they will plan and carry out activities for the in-service trainees under their direction, especially with reference to released time on the job. Their work will center in "portal schools," a concept discussed later in the chapter.

Institutions and Agencies Involved

The in-service phase as outlined above and the rationale for such a component to supplement a preservice phase carries a clear implication that responsibility for this phase must be shared. Neither a university, a school system, nor a state department of education can alone accomplish the objectives implied in the rationale. All three must be involved in ways appropriate to their legal and professional responsibilities and in keeping with the resources, human and financial, available to them.

When further education of the trainees who have completed the pre-service phase of the model program is of primary concern, a university will need to take major responsibility for what is to be done. It will, however, need much help from the cooperating school systems in which program trainees are employed.

When such matters as certification, retirement, tenure, and financing are concerned, a state department of education will need to be involved. When questions of state policy bearing on such matters as the preparation and use of para-professionals, differentiated staffing in schools, or the selection and use of books and other teaching materials are being considered, a state department of education will need to provide the leadership necessary to see that actions on all such policies create conditions favorable to the in-service growth of teachers. Faculties of school systems and of universities will need to be in consulting-supporting roles in these situations.

When a faculty of a school system organizes and proceeds to work on local school problems in ways designed to provide learning experiences for teachers, the main burden for planning and carrying out such a program should rest with the school system. A university and a state department will need to serve only in supporting roles.

All of this adds up to the logical conclusion that the pre-service--in-service phases are part of a continuum, and that to varying degrees, schools, universities, and state departments of education will need to be involved at each step along the way.

The Relationship of a University to Schools in a Model Program

In harmony with the position taken in the model to this point, a university will need to commit a reasonable portion of its resources, human and financial, to school systems working with it to assist them in getting appropriate in-service programs underway and/or in maintaining such programs where they already exist. Officials of a university will not, however, use its resources to engage in a wide range of miscellaneous activities in many schools, thereby creating an illusion of ability to provide general service and tempting school officials to abdicate their responsibility for developing their own system-wide in-service programs.

At first, a university will establish close working relations with a few school systems. Further, most of the resources of the university will be centered on those school building units within these school systems that have agreed in advance to absorb into their faculties large numbers of beginning teachers who have just completed the pre-service phase of the model program. Each of the cooperating school systems will be asked to designate one or more such elementary school units as "portal schools." This term is appropriately descriptive in that such schools will mark the transition between the pre-service and the in-service phases of the model program and will be the gateway for entry of teachers into the teaching profession.

Portal Schools

Although the nature of the portal schools will vary among school systems, they will have some characteristics in common. First, principals and other status leaders in these schools will be favorably inclined toward innovation. Second, they will use some of the "new" curricula that have been developed in such areas as mathematics, science or social studies. Third, they will be employing organizational arrangements that include the utilization of para-professionals and teacher aides, some differentiation of roles among teachers, and a modular schedule. Fourth, these schools will make considerable use of new teaching media. In a general sense they will express, by becoming a portal school, a willingness and an interest to participate in a variety of ways in the full sweep of the model teacher education program, including both the pre-service and in-service phases.

Functions which portal schools will serve in the total model program can now be visualized:

1. They will insure an easy transition for trainees from a shielded position in the university

pre-service phase to a fully responsible teaching position in the schools in the in-service phase.

2. They will make it possible for the in-service phase to operate in school situations totally in harmony with the goals of the model program.

3. They will be useful in providing feedback to determine further needed changes in both the in-service and pre-service phases of the model program.

In turn, they will serve cooperating school systems in specific ways:

1. They will provide a supply of teachers, through the staff associate role and the intern group itself, that can be used as leaders in other schools within a school system.

2. They will constitute demonstration centers within school systems for the promotion of change.

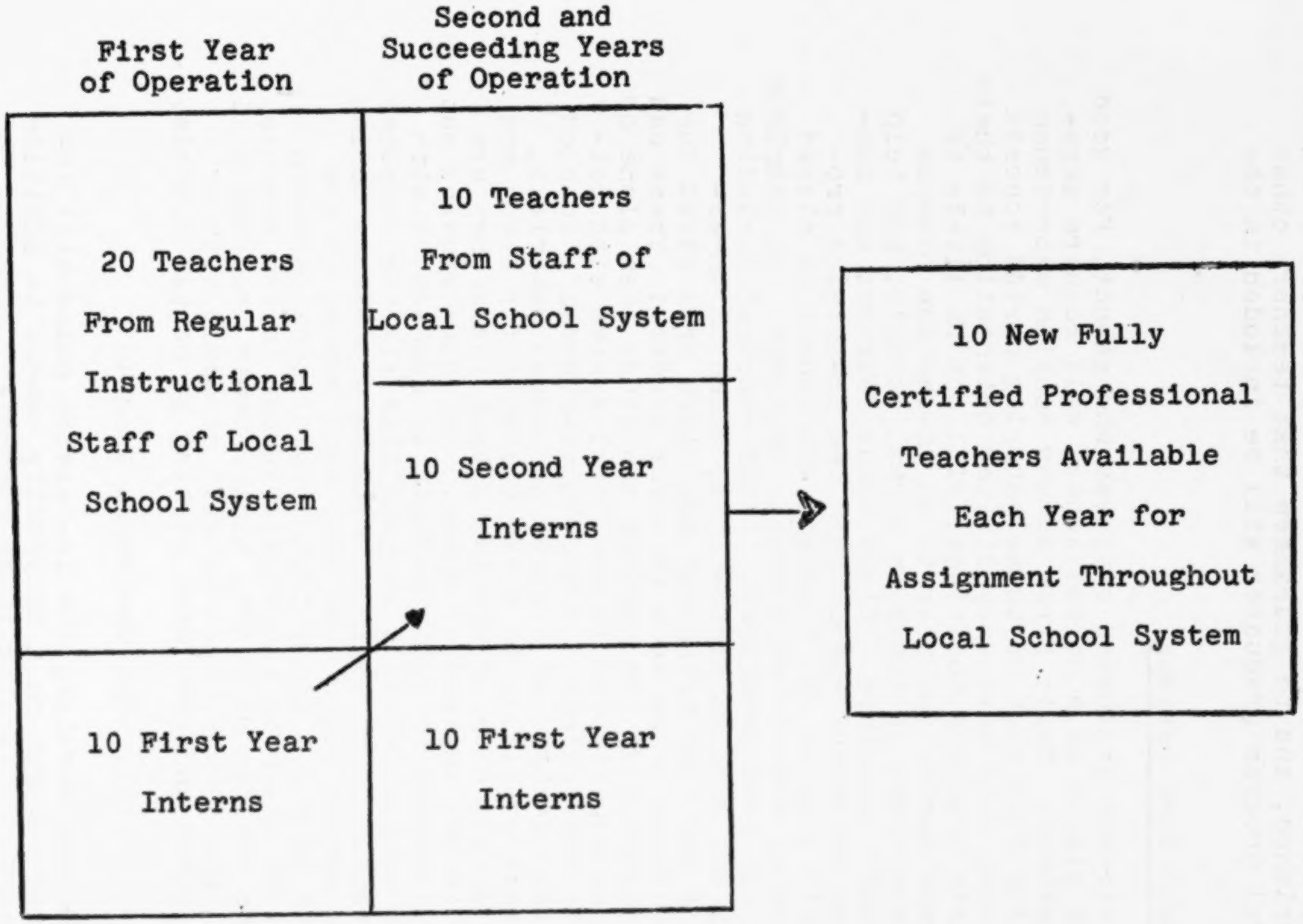
Every effort will be made to place all trainees in portal schools when they complete the pre-service phase. A university will need to encourage each school system with which it has developed close working relationships to add portal schools as the numbers of trainees completing the pre-service phase of the program increase. Conditions are certain to arise, however, which will make it impossible for some trainees who complete the program to accept their first teaching positions in portal schools. A university will need to provide means for such trainees to continue through the in-service phase. The means as visualized in this model are described in later paragraphs.

As now planned the in-service phase will operate in portal schools somewhat as follows: during the latter part of the first of the three summers in which the graduates of the pre-service phase will be enrolled at the university, the staff associates and the principal from a given portal school will come to the university for joint planning with model program faculty and the group of trainees who will teach in that portal school during the following academic year. Together, they will plan for the teaching assignments that all will carry during the following year, will select and organize teaching materials to be used, and will determine the way they will work on instructional problems that arise during the year. Further, the design for such differentiated role assignments as will be necessary to free the in-service trainees to carry a reduced teaching load will be carefully explained.

During the first school year the trainees will participate in the in-service program planned for the building unit, and in addition will work with their university counseling professors and portal school staff associates in a further refinement and synthesis of the instructional behaviors developed during the pre-service phase. At least once during the first year trainees will return to the university campus for a general conference of first year teachers for several purposes, including feedback on the operation of the program.

As the program moves into full operation, the proportion of teachers in the portal schools who will be completing the model program will gradually change. (See Figure 9). During the first year of operation of a portal school, about one-third of the teachers in it will just have completed the pre-service phase of the model program. During the second year, this one-third will stay as second year teachers, and another third will be added, as first year teachers, from those then completing the pre-service phase. In the third year of operation of a portal school, the one-third of the faculty who have now finished the second year of the field work part of the model program and have been fully certified as teachers will be reassigned to other elementary schools in the system. Their places will be taken by trainees who have just finished the pre-service phase of the program. The one-third who have finished the first year of their two year field work assignment will remain in the portal school.

More than one course of action may be followed in relation to the one-third of the portal school faculty made up of experienced teachers from the local school system. All of them may simply remain in the portal school for another year. Or, some of them may stay on while others are rotated out for new school assignments, to be replaced by other teachers from the system. Once the portal school arrangement is fully operative it will be most usual to leave an experienced local teacher in a portal school for about three years and then intentionally re-assign him for a teacher-leader role in another school. Thus the cooperating school system derives two kinds of teacher in-put from the portal



PORTAL SCHOOL STAFFING CYCLE

(Assuming a 30-Teacher School)

Figure 9

schools: They have new, fully certified teachers for assignment, and they have experienced teachers to be reassigned after having undergone a rather unique professional growth experience. By following such a procedure it will be possible to assure a defensible balance in portal school faculties on the factor of teaching experience, and to guarantee that teachers other than model program graduates will be included in the faculty.

Other Field Work Options

As already indicated trainees who cannot, for good reason be placed in a portal school will require separate treatment. Their first summer session experience will differ from that of those entering portal schools in that they will have very limited orientation to their next year's teaching positions, will not be likely to have access during the year to an in-service program as well organized as those in portal schools, nor help from a staff associate. Since these features are considered as important elements in the in-service program, their absence for trainees who cannot be placed in the portal schools will create problems. No complete solution has been developed. "Mini-courses" including exemplary and problem video-tapes, based on an extension of the four principal behaviors prescribed for the pre-service phase seem to offer promise. These can be so designed that the trainee can study them alone or they can be experienced in the local system with colleagues of the trainee. These "mini-courses", coupled with special packets of printed and taped materials, will be made available to these trainees for study and analysis during each of the two school years they are involved in the in-service phase. The data growing out of the evaluation of their efforts in connection with these two activities will be available via the computer for consideration by their counseling professors during the three summer terms when they will return to the university campus. Aside from special consideration that will be given to their experiences in the schools during the two school years, their summer programs will deal with the same matters as will be dealt with by those trainees who have been working in portal schools.

III. The On-Campus Program

As stated earlier, the in-service phase will include three summers on a university campus in addition to two years of teaching in an elementary school. The latter field work portion of the in-service phase is designed to improve teacher competence by focussing on practical problems in the teaching environment, and provides for released time from classroom teaching responsibilities to do this. The on-campus portion of the in-service phase is designed to add to competence through a more systematic study of matters seen to relate to the higher levels of professional skill envisioned for the graduates of this model program.

Specifically the three summer sessions will be used to accomplish three major objectives: (1) to provide a more rational basis for engaging in specified teaching behaviors through the systematic study of selected aspects of professional education, (2) to supplement reality experiences undergone while teaching in the schools, that relate to the behavior broadly classified here as professional responsibility, by studying political and sociological aspects of the teaching profession, and (3) to provide opportunities to pursue various forms of specialization in elementary school education beyond that available in the pre-service phase of training. In addition to these three major objectives, some time each summer will be given over to planning for trainees' teaching assignments in the schools for the following year. This will be especially true in the first summer.

The program during each of the three summers will be designed to contribute to all three of the above objectives. The accomplishment of each is somewhat experience-related; work engaged in will be the more meaningful when it can assume that trainees bring certain organizers to it gleaned from their having served as regular classroom teachers in the schools. This is true for all three of these goals. What can be accomplished in each successive summer session will increase as a function of the added experience which the trainees will have had and the study they will already have completed. Logically the third summer session should make possible the most intensive and satisfying summer study experience of all. The seminar format will be used each summer for carrying on the program. Counseling professors and staff associates from the portal schools will staff the seminars.

The summer programs will meet the first objective, that is, a systematic study of selected aspects of professional education, through seminars in such areas as history of education, philosophy of education, educational psychology, educational sociology, statistics, and measurement and evaluation. Each trainee will study in at least one of these areas each summer.

The summer sessions will be seen as of major importance to the realization of the second objective, that is, the development of the teaching behavior referred to here as the willingness and ability to become a professionally responsible teacher. Only a beginning is made on this behavior in the pre-service phase. The essence of the behavior--the way a teacher works with his colleagues at the local, state, and national levels; the attitude he takes toward change and innovation in education; the accomodations he is willing to make in the interest of the profession and the general welfare--seems to require some experiential base in teaching for its acquisition. But, to a degree, its acquisition is based on insights that cannot be attained through experience alone. Thus, each summer there will be seminars which deal with such things as the status of the teaching profession, the changing image of the teaching profession, the changing roles of teachers, administrators and supervisors in decisions of a wide ranging sort in schools, the great variety of professional organizations and the functions which they serve, the organization and operation of state departments of education, and the relationship of the teaching profession to labor, business and the general public.

The third objective, namely the furthering of training toward various specialized career opportunities in elementary education, will also be an important one in the summer sessions. To an extent, trainees will have been asked to make a limited specialization choice in the pre-service phase of the program. It will be remembered that each will have been asked to express an age-group preference for teaching, and each will have developed at least one subject-matter area of concentration. With teaching experience and with added awareness of the emerging organizational plans for carrying on elementary education, it is expected that trainees will want to avail themselves of the opportunity to pursue further a specialization. For many this may take the form of added specialization focussed on an age range of children (very young, young, older) or on a subject matter area started in the pre-service phase of training. For others it may take the form of specialization to work with a particular type of child (slow-learner, gifted, disadvantaged). And for still others it may center on differentiated roles that are only now beginning to be defined in elementary education. In mind are such specializations as director of a building unit learning center, or as a diagnostician in schools committed to individually prescribed instruction, or as a remediation person for work with children who are in trouble in their learning, or as the leader of a team of teachers, or as a trainer of teachers in a role like that suggested by the staff associate assignment in this model program. Whatever the choices may be, seminars will be designed to clarify the demands of the selected specialization, and either to offer or direct students to the further trainin required by it.

The satisfactory completion of the work outlined for the three summer sessions, and satisfactory performance in the two-year field work program in the schools will culminate for the trainee in the receipt of the master's degree from the preparing institution and a recommendation to the state department of education that the candidate be issued full professional teacher certification.

CHAPTER VII

ADMISSION AND SCREENING

I. Introduction

The professions provide crucial services to society. They heal our bodies; they protect our legal rights; they teach our children. The quality of service made available by any given profession is in direct proportion to the abilities of the persons in it and to the adequacy of the training they receive. All professions are, therefore, interested in attracting the most able young persons to their ranks in providing highly effective training programs for them, and in retaining them in service once they are trained. Two factors--the quality of the trainee and the quality of the training program--interact one with the other. Improvement in the quality of trainees will in itself bring about some greater effectiveness from a training program. Also, recognized improvement in a training program will tend to attract more able trainees to it. The professions that have made the most progress within the last half century are those which have given equal attention to both of these factors; that is, the improvement of training programs and the recruitment of the most able trainees. The teaching profession is no exception. The improvement of teacher training programs and gains in the quality of the personnel who are prepared in them must proceed together. It is to be expected, therefore, that a set of specifications for a model teacher training program such as those stated in this report will include attention to requirements for in initial admission to it, and for retention in it.

II. Rationale for Admission

For any who doubt the necessity for giving particular attention to the quality of those to be admitted to the training program, specific arguments are offered here.

Intellectual Requirements

First, the elementary schools of this country need to be staffed by persons with high intellectual ability. It should be clear from the predictions presented earlier about education in 1978 and the inferences stated about elementary school teaching at that time, that only persons of high ability will be successful teachers. Difficult and complex decisions on such matters as the selection of teaching tools, the endorsement or adaptation of curriculum packages, and the utilization of teaching methods with specific pupil populations will be required. Will all persons who may seek to become elementary teachers possess the intellectual and academic abilities to meet the requirements of the position as it is coming to be? If the answer is "No," and there is reason to feel that it is, obviously some selection from applicants will need to be made. The position is taken in the model program that a requirement for admission to training must be evidence of high intellectual ability and achievement.

Motivational Requirements

Second, not enough of those who undergo preparation to teach are sufficiently committed to teaching as a career. The drop-out rate of elementary teachers is so great that the cost of preparing and keeping an elementary teacher in a classroom is believed to be higher than the per capita cost of preparing and keeping a general practitioner in his office, even though the cost of initial preparation differs greatly. The attrition in the supply of elementary teachers begins between graduation and certification; large numbers fail to apply for certificates. The attrition continues between certification and service in the first three years of teaching. Granted that marriage and family life contribute to this attrition, these causes do not appear to account fully for its magnitude. The possibility of making a stronger personal commitment to teaching a requirement for admission to a training program presents a challenge that this model program could not overlook.

Health Requirements

Third, and of a somewhat different order, it is clear that elementary school teaching requires a certain level of physical and mental health. For this reason, data related to the health status of applicants will need to be considered at admission. With respect to physical health the decision will need to be made in terms of any limitations on teaching performance that a given physical condition would impose, or any danger it might offer to children. The mental health of the teacher, is recognized, may very well be of crucial importance to his success and to the welfare of his pupils. The model program, therefore, specifies that physical and mental health data be included in admission considerations.

Some further elaborative comments on these arguments may be useful here. During the past 25 years approximately thirty per cent (30%) of the persons who are granted baccalaureate degrees yearly meet certification requirements to become teachers. But during all of that time the quality of that 30%, as determined by grade-point averages, achievement tests, and aptitude tests, has been below the rest of the college population. Research studies consistently support this conclusion, even after all corrections are made in the data available (Woelfel 1952). More specifically, those who plan to become elementary teachers have been found to be among the least able of the group. It is true that improvements have been made, particularly in some institutions, within the past ten years on this point, but there is little reason to believe that as a group those who prepare to become elementary teachers are yet as able as the remainder of the college population (Mayor, 1965). There is reason to believe, however, that where admission requirements have been raised, the quality of elementary teachers has improved. That is, selective admission procedures tend to attract more able trainees. At the same time there is no evidence that such procedures reduce the number of young people who make themselves available for teacher preparation; the opposite seems to result.

For those who would resort more to personal counseling for admission purposes, it must be noted that such activity helps primarily to identify the highly motivated rather than the more able. Since highly motivated persons are sought as elementary teachers, specific provisions are made for counseling experiences designed to provide information to the student about himself and about teaching, on the basis of which he may decide whether or not to apply for admission. However, this procedure by itself will not yield sufficient information for an admission decision. Therefore, this model program specifies the utilization of some rather straightforward intellectual and academic criteria for admission.

III. Criteria for Admission

Initial admission will be based upon three kinds of information: (1) measures of abilities, (2) measures of commitment, and (3) measures of physical and mental health.

Measures of Abilities

Data from two sources will be used to determine whether applicants have the intellectual and academic abilities required for admission. The first of these sources are the standardized measures of aptitude and achievement available commercially. A battery of tests recommended for use in the admission program is included in Appendix H, along with a rationale for each test selected. These include measures of general aptitude, measures of ability to organize and express ideas in written form, and measures of general achievement in specific subject fields. The second source will be the records of accomplishments which applicants have achieved with their abilities. Usually these will take the form of grade point averages, special honors, and the like. The extent and kind of student participation in campus and community life also reflects something about the way he uses his abilities, and such information will be used.

Measures of Commitment

Likewise, data will be sought from two sources on commitment, which can reasonably be expected to have a bearing on admission. As in the measurement of abilities, a first source of data will be the various standardized instruments available commercially. There are published instruments that purport to get at such matters as attitudes toward other persons (especially children), attitudes and values as related to self, and attitudes and preferences toward occupations. At the outset, scores derived from these instruments will not be regarded as prime data on which to base a decision to admit or not. The developers of this model are well aware of the difficulties encountered to date in collecting and interpreting such information. The scores will instead be fed into the computer as a part of a data bank for research purposes. If eventual findings indicate a significant relationship between such measures and the initial learning of prescribed teaching behaviors, later performance as a full-time teacher, or persistence in the teaching profession, they may then carry more weight in initial admission decisions.

A second source of information about commitment, perhaps more useful than the first, will be the reactions of the potential trainees to the early awareness-involvement experiences (see Appendix C). The counseling professors who will direct these experiences will be in the best possible position to sense attitudes of prospective trainees that should be considered at the time of admission. These attitudes will doubtless be revealed, both overtly and covertly, as prospective trainees work with their peers, have exposure to advantaged and disadvantaged children, undergo experiences in different kinds of schools, and observe teachers with different points of view and varying degrees of skill. It is realized that the collecting of information in this context introduces a degree of subjectivity not present with the already mentioned standardized and objective measures of ability and achievement. However, this is information that is needed in admission decisions. The counseling professor, as a keen observer and an objective interpreter of what he sees, will furnish reports based on the early awareness-involvement work done under his direction which will merit serious consideration as prime admission data.

Measures of Physical and Mental Health

Physical and mental health data are a third source of information for admission. Here the counsel of the medical profession will be needed. Health examination data as well as personally volunteered health history information will need to be interpreted against the requirements of teaching. What will be sought are reasonable assurances that the health status of an applicant does not suggest inability to engage in the tasks that are essential for teaching, and that no condition exists which might endanger children. The physical health data will be readily collectible and interpretable. The mental health data may not be. Sufficient counseling services, with easy access to psychiatric personnel as required, will be essential. University professors responsible for the admission of applicants will have to defer to the judgments of medical personnel and clinical psychologists in utilizing measures of physical and mental health as admission criteria.

IV. Diagnosis of Entry Skills

A word is in order here concerning the requirement for diagnosis of entry skills as specified in this model program. Certain skills and knowledge are expected to be attained by trainees prior to pursuing pre-service sequences. As soon as a trainee is admitted to the model program, he will be assessed on the extent to which he has attained prerequisite entry skills using a battery of locally designed diagnostic instruments. This diagnosis will make possible: (1) the best placement for the trainee in the training sequence for which he is ready, (2) the provision when needed of work designed to selectively upgrade entry skills, and (3) the extablishment of a basis upon which to base initial time estimates for pacing the trainees program. This procedure enables pre-service phase training to meet maximum individualization goals from the outset. Additional information about entry skills can be found in Appendix J.

V. Criteria for Retention

As stated at the beginning of this chapter, decisions will be necessary relative to allowing a student to continue with training underway, as well as initially admitting him. The acceptance of the need to make retention decisions recognizes the predictive nature of the already discussed admissions information and the possibility of error no matter how carefully done. This model program is committed to the proposition that all such screening after admission must be a function of the trainee's demonstrated ability to meet stated performance criteria. In setting performance in the behaviors prescribed by the model as the basis for deciding whether or not to continue a trainee, it is recognized that many factors may contribute to unacceptable performance. As already noted here, the model program presumes that this will usually be due to weak motivation, or limited intellectual ability or academic background, or the presence of health problems, or all of these. The impact of any one or more of these factors as an influence on performance will need to be dealt with as such.

Frequent computer print-outs on each trainee, which refer to his performance status on behaviors covered to that point, will provide a profile which will serve several purposes in relation to retention. It will provide a reading for the trainee himself on the program he is making. The availability of such data should help to allay tensions emanating from the uncertainty and the vagueness inherent in traditional marking systems. Also, a print-out will be useful to the counseling professor in helping the training program, including a recommendation that he not continue with it. Combined profiles of trainees will provide useful data-bank information for use in researching factors significant for predicting failure or success in the model training program.

VI. Redirecting Applicants to Other Roles in Education

This model program assumes that a commitment to selective admission to and retention in a teacher preparation program carries a concomitant responsibility to students for career redirection. This recognizes the increasing variety of positions to be filled in education and the specific nature of the demands these positions place on people who would fill them. Illustratively, while the position of media specialist may make high intellectual demands on a trainee, it may not make similar demands in the matter of empathy for children and an easy relationship with them. Thus, a student who might not be admitted to or retained in a teacher training program because he was not judged to be effective in relating to children could be redirected to a role in education that could use his other abilities and in which he would be effective. The point is that to embrace selective admission to and retention in a teacher training program is not to commit oneself to a policy of "in or out" of an educationally oriented occupation. Rather, it commits one to helping young people who are interested in working in the schools to find a place in the total emerging pattern of school positions for which they can be prepared and in which they can be effective and happy.

VII. General Concluding Considerations

It should be clear that the decision to specify admission and screening requirements in the model program is made to try to insure maximum benefit for the children in the schools, the schools themselves, the profession, the wider society, and the individual applicant. It is equally clear that, given our present state of knowledge in predicting success in teaching, some mistakes will be made. Doubtless, some will be admitted who should have been rejected, and some will be rejected who should have been admitted. The model program operates on the assumption that mistakenly denying a few that should be admitted may be justified if in so doing large numbers who should not be taken in are routed into career paths other than teaching.

This carries with it a great responsibility to advance the knowledge and skill needed for predicting success in training and, ultimately, on the job as a teacher. To deny a young person the opportunity to be prepared for his chosen occupation is an action that cannot be taken lightly. Therefore, the initial focus of the admission and retention program will be on the development of an empirical base upon which to make improved subsequent decisions. To do this will require the establishment of a data bank for research purposes. It will be the policy, in the early years of the implementation of the model, to place in the data bank more information on trainees than may be necessary when the relationsip of the various items used to the performance of trainees on the prescribed behaviors has been established. In this area of the model program it is especially important that the director and his staff adopt a research posture.

Organizational Structure and Procedures for Admission and Screening

A recommended organizational structure and procedures for the administration of the initial admission program and later screening program is recommended in Appendix I, along with the rationale on which they are based.

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CHAPTER VIII

FACILITATING COMPONENT: COMPUTERIZED MANAGEMENT CONTROL SYSTEMS

I. Introduction

It is clear that even a minimal definition of individualized instruction must include the concept of self-pacing. When individuals are permitted to learn at their own rate, enormous differences in the time required to achieve certain performance standards are soon evident (Suppes, 1966; F. S. U., 1967, 1968). As a result, practitioners in individualized instructional programs (Smith, 1968; Esbensen, 1968) report that the teachers and aides become innundated with record-keeping activities. The need for a computerized management system is obvious in these settings, but only two prototypes are available at this time--those at the Systems Development Corporation (Coulson, 1968) and the New York Institute of Technology (Schure, 1965). Both of these systems are basically batch-processing operations, i.e., they utilize punch card and magnetic tape input, and very little real-time interrogation of the information base by teachers is in evidence. It may generally be said that, for the most part, persons interested in the implementation of individualized instruction have been found in one camp, while persons with the skills for implementing a computerized management control system have been found in another. It is obvious that these skills must be merged.

The general purpose computer has many potential roles to play in education (Bushnell and Allen, 1967). Its capabilities range from high-speed accounting to computer-assisted instruction. The larger the computer system, the greater the likelihood that it can be used for a variety of these tasks. The system which will be described for the model elementary education training program has been designed to fulfill certain specific and much needed management functions. However, it can serve a great variety of purposes in addition to those which will be indicated in the management system.

Overview

The computerized management control system (CMCS) can best be conceptualized in terms of the needs of the various users of the system. One type of user will be the trainee and the professorial staff who are assisting the trainee. Their primary interest will be in determining the "location" of the teacher candidate in the training program, what behaviors he has just completed, what behaviors should be learned next, etc. The system should provide these users with information for counseling the trainee in terms of the instructional alternatives which are available to him. It will also serve as a record of his past performance. (The exact nature of the trainee's record will be described later.)

A second type of potential user of the CMCS is the administrative force which will be required to implement the training program. Their primary problem will be one of allocation of human and material resources. Certain program activities will require the availability of rooms with video tape recorders; others will require small rooms which can be used for group discussions. At certain times faculty members will be required to be on campus, while at other times, they will be needed as observers in the schools and in-service centers. In order to anticipate these needs and prepare for them, the administrators must be fully aware of the resources which are required for implementing the program, and must be able to determine the rate at which trainees will require access to various facilities and resources.

The third type of system user is the curriculum developer and the researcher, the people who are responsible for producing the instructional materials and experiences and for monitoring the success of each of these. It may be anticipated that this group will be composed of a large number of specialists in such areas as content, audio-visual devices, professional writing, curriculum, and educational research. Their interests will not be limited to a single trainee's total score on a criterion test, but rather on the performance of a large number of students on each of the subcomponents within a task. In addition, they will want to determine the relationship between the trainee's present performance and his past and future performances. This information will be used to revise the various activities and materials, and to determine the feasibility of various instructional sequences. .

II. Two-System Concept

The analysis of the potential users of the CMCS indicates that some of the users, namely the teacher candidates and professional staff, will need to have access to the information which is in the system on an as-needed basis. This suggests that the CMCS should operate in real-time, i.e., the trainee or faculty member would be able to have access to the information via a remote terminal at any time during the day. The information in the system, in turn, should be accurate and up-to-date. On the other hand, the program administrators and curriculum developers have more lead time in terms of their requests for information. For example, the administrators could receive a weekly or semi-weekly status report on all students and an indication of anticipated resource needs. The curriculum developers would work with researchers in planning exactly what data they would like to retrieve from the system in order to evaluate their own materials and activities.

This further analysis of the users and their demands upon the system indicates that not only will they have various lags in terms of the time required to receive information, but they will also be seeking different types of information. The trainee and professor will want information about the events related to a single trainee; the administrator will want information on single events.

Therefore, it is proposed that two interrelated systems be developed. The first system will serve the trainee, the professor and the administrator; it will operate in real-time, via remote terminal access for the first two users, and will operate in batch-mode for the administrator. The second system will operate only in batch-mode and will be entirely oriented toward the needs of the curriculum developer. These two systems will be further explicated in terms of systems concepts, input and output procedures, and hardware and software requirements.

The real-time management system will utilize the management tool called Program Evaluation and Review Technique (PERT) for the control of a trainee's program. A review of the management requirements of the program and the management assets of PERT for appropriateness of fit might be desirable.

The customary method of graphically describing the usual academic program is via a flow chart. A flow chart clearly depicts the sequence of experiences to be followed to reach the end objective, and can be particularly useful when alternatives are to be depicted. But, if time and the allocation-reallocation of resources is significant to management, flow-charting is inadequate. The kind of scholastic program involved in the model herein described achieves its uniqueness from two innovations: it is individualized for each student through the requirement to meet behavioral objectives rather than the accumulation of stipulated numbers of hours in various courses. It is also individualized through his sequences of behavioral objectives.

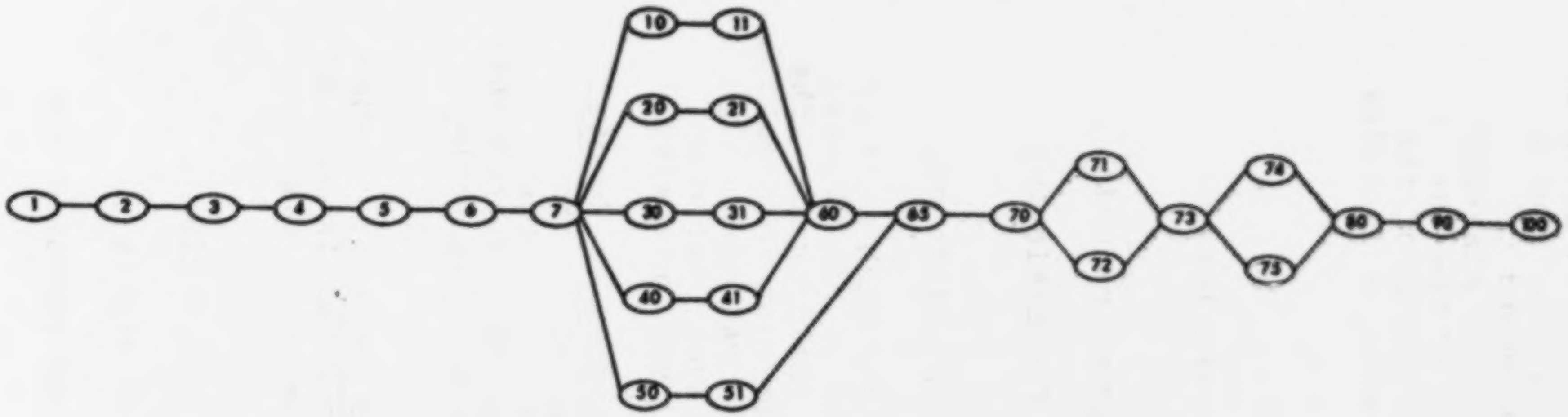
Although the model might be depicted by a standard flow chart, because of these unique characteristics it can only be adequately managed by a technique such as PERT. The application of PERT to the management of a teacher trainee's program (see Figure 10) will begin with the determination of the "events", which will in the main be the series of behavioral objectives which lead to the terminal objective, full professional certification. The events will be sequenced into logical paths by disciplines and content areas, these paths forming the PERT network. The introduction of estimated times for the accomplishment of the "activity" lines joining the events is of utmost importance. The activity leading to each behavioral objective event is a learning experience, and the amount of time predicted for an activity is unique to each student, dependent upon his intellectual capacity and previous training.

With such a network constructed by the trainee and his counseling professor, they may at any time make a statistically reliable statement of the probability of reaching the terminal objective on time, that is, by the scheduled date, as well as the current need to redistribute trainee resources (study time) from one path to another as experience points up errors in the original time predictions.

It follows that a cross-sectional look by a computer at all trainees' networks for any desired point in future time can give the program manager a reasonably accurate prediction of the resources he will require to carry on that program for all students.

Real-Time Management System

The best way in which to conceptualize the real-time management system is to consider a very large PERT network. The entire network represents the total training program for one trainee. Each major pathway represents one of the primary components of the program, and each bubble represents a behavior or criterion which a student must achieve within a component.



1	Student application received
2	Initial screening completed
3	Student accepted for program
4	Entry skills and knowledge measured
5	Counseling professor appointed
6	Student counseling started
7	Program established
10-11	Formulation of objectives criteria met
20-21	Selection and organization of content criteria met
30-31	Employment of appropriate strategies criteria met
40-41	Evaluation of outcomes criteria met
50-51	Demonstration of leadership and professional responsibilities criteria met
60	Synthesis of objectives, strategies, evaluation, techniques and content
65	Bachelor's degree and provisional certification awarded
70	First summer program completed
71	Academic year of teaching completed
72	Academic year of practical problems completed
73	Second summer program completed
74	Second year of teaching completed
75	Second year of practical problems completed
80	Third summer program completed
90	Master's degree and full professional certification awarded
100	Teacher training program completed

GENERALIZED PERT NETWORK OF STUDENT PROGRESS THROUGH TRAINING PROGRAM

Figure 10

Figure 10 shows the PERT network representation of the program for one trainee. Notice that the events will have sequential numbers which correspond to behavioral objectives such as are described elsewhere in this document. The full implication of the use of the network can be shown through a discussion of the five basic types of information which will be included in the system:

1. trainee background information;
2. sequential list of criterion behaviors or events;
3. PERT network and trainee progress records;
4. list of activities available for achieving each event; and
5. estimated times to achieve each objective.

Trainee Background Information. For each teacher candidate, there will be a short record of his skills, interests, and aptitudes as he enters the program. The information in this record will include that information which is most often used in counseling trainees: high school and university grade point averages, various aptitude scores, relevant experiences, and interests.

Sequential List of Criterion Behaviors or Events. A list of numbered events will be inserted in the system so that in addition to indicating that the trainee has mastered event 057, a printout can show that he has demonstrated the ability to use probing techniques.

PERT Network and Trainee Progress Records. A numbered pathway for each st[illegible] will be established. As a student completes an e[illegible] the following 20 digit record will be insert[illegible]

1. trainee identification number (3 digits);
2. event identification number (3 digits);
3. number of times the trainee has repeated the event (1 digit);
4. minimum score acceptable on the event (3 digits);

5. score achieved by the trainee on the event (3 digits);

6. date that criterion instrument was attempted (6 digits); and

7. indication that a comment is associated with the trainee's performance (1 digit).

For instance, a sample trainee record such as 057 547 2 078 085 020668 1, could be interpreted as follows:

> This is a record for trainee 057's performance on objective 547. The student took the criterion test two times. The minimum acceptable score on the criterion is 078; the teacher candidate has a score (on his second try) of 085. The evaluation took place on February 6, 1968, and a comment has been recorded relative to the trainee's performance.

If the trainee is required to repeat an event, the most up-to-date record will be available on the system; previous records will be stored and made available as needed. Item seven, above, will consist of a "1" if the professor or trainee wishes to make a comment about this event, otherwise it will be a "0." A list of these comments will be generated with their associated trainee and event numbers, and will be available as needed.

List of Activities Available for Achieving Each Event. This list will be available for each event. It will indicate what materials and activities may be used for achieving each objective. At the initial stage in the development of the entire program, the only means for achieving a particular event might be by taking a particular course. As the program expands and becomes truly individualized, a great number of alternatives may be available to the trainee. The advisor would assist the teacher candidate in his selection of the most appropriate alternative.

Estimated Time to Achieve Each Event. A critical element of all PERT networks is the estimate of time required to carry out each activity. There are usually three estimates: optimistic, pessimistic, and most likely. Initial estimates of these parameters will often be based on very little concrete data; however, after a number of teacher candidates pass through the new training program, time estimates of this type should become quite realistic and therefore should be included in the computerized management control system. Such information would be invaluable to the program administrator as well as the trainee and his advisor.

The five features described above characterize the real-time management system. More details will be indicated in the sections on input and output, and systems requirements. We now turn to the essential characteristics of the batch-mode retrieval system.

Batch-Mode Information Retrieval System

This system will serve primarily curriculum developers as well as educational researchers who will use these data to explore a variety of training hypotheses. It will essentially be a very large data base from which specific types of information may be retrieved in order to be summarized via standardized data analysis techniques. The basic information in this system will be of two types: (1) trainee background information; and (2) detailed trainee performance information.

Trainee Background Information. There will be a complete file on every trainee which includes all the information which is gathered as part of the selection procedure. This information is described in detail in another part of this document. In general, the file will include such information as scores, attitudes toward children, self-image, and openmindedness. It will also include information on the trainee's progress during the first two years of college, including such items as course performance, academic interests, and extra class interests.

Detailed Trainee Performance Information. This will be a complete file of all the teacher candidates' performances on all the activities in the program. For activities which require the development of certain cognitive skills, the data may be in the form of results of a multiple choice test. If the activity relates to the learning and demonstrating of a certain technical skill in teaching, the data may represent the results of an observational checklist.

The purpose of these data will be twofold. The curriculum developer can retrieve that data which are relevant to the activities which he has created. The data will be invaluable in the formative evaluation and revision of the instructional materials and activities. The curriculum developer may wish to use the background information on the trainees to stratify his data in various ways; e.g., performance of junior college vs. home institution trainees. The second purpose of the data will be to investigate the relationships between background information and performance in order to make the training appropriate to various types of teacher candidates, to enhance the validity of the selection procedures for the program, to predict success in in-service activities, and to investigate alternative sequences for the instructional events. More details on this information retrieval system appears in the sections on input and output, and systems specifications.

III. Input and Output Procedures

Data Input

The data which will be provided to the system have already been described; the problem remains of how these data are to be placed in the system and how output will be derived.

The information which will be used for the selection process will obviously come from several sources. The registrar will provide certain background and course performance data. Other information will be derived from standardized testing and personal interviews. As much of this information as possible will be gathered on optically scanned answer sheets or on mark-sensed cards. An additional alternative is to have trainees answer questions at a CAI terminal. The data would be recorded on magnetic tape and be available for retrieval. The remaining information will have to be keypunched.

All of this information will be collated, and a master background information tape built. This will serve as the initial portion of the batch-processed information retrieval system. From this tape will be selected those variables which are most critical for availability on the real-time management control system. This information will be written on a disk and form the initial portion of that part of the system.

Recording sheets which can be optically scanned will be used to input data on the teacher candidate's performance in the training program. Data sheets will be specially designed for this purpose. The faculty member who is responsible for certifying that a trainee has completed a task will code in the trainee and task number, the data, the minimum and the obtained scores. If he wishes to make a comment, he will so indicate by recording a "1" in a prescribed area and then writing the comment on the card.

These sheets will be automatically read and the information written on magnetic tape. They will then be loaded into the PERT network. A number of checks will occur at this point. If there are already data present for an event for a student, and new information comes in, the "repetitions" counter will be incremented and the old information moved to another file. The new information will then be stored. A check will also be made that the student has completed the just-preceding task. If he has not, a message will be printed out to this effect. After the sheets have been read into the system, they will be sorted to determine the sheets with comments on them. These comments will be keypunched along with the trainee-event number and entered into the "comments" file in the system. All sheets will be saved for systems backup purposes.

The information for the retrieval system will have to be gathered in a variety of modes. Whereas the management control system has only a task score, the information retrieval system will have data on all the elements which make up the score. Obviously, a great deal of data will be generated. As with the background information data, attempts will be made to collect as much of the data as possible on machine readable forms or via CAI terminals. The rest will be keypunched.

Most of these data will be read into the system via an optical scanner. The initial accumulation of data will be on disks where it can be manipulated easily. As all data are collected for a particular event, data will be written off on magnetic tape. Eventually, the data base will consist of a series of tapes which are sorted by event and teacher candidate.

Systems Output

The output from the CMCS will differ for the various users.

Real-Time Management System. In a typical trainee counseling situation, the initial request to the system might be to show where the teacher candidate is in the network. The trainee or faculty member could enter the command: NET 268.--This would be a command to printout the PERT network for trainee 268. What would appear at the terminal would be a printout with a series of x's scattered on the page. This page would be removed from the terminal and placed under an acetate which has imprinted on it the PERT network with its numerical identification of events. For those events that the trainee has completed, x's will appear in the appropriate "bubbles." Uncompleted events would have no x's in the bubbles.

If it were desirable to know how well the trainee had performed on a particular event, the request would be coded: PRF 128. The terminal would then type out the trainee's score on the criterion for event 128, along with the minimum acceptable score, the date it was achieved, and any comments that have been entered.

The command, DEF 129, would result in a printout of the specific objective for event 129. The command, ACT 129, would produce a list of the activities available for use in achieving event 129.

The following types of questions could also be answered by appropriate requests for information:

1. What is the last event completed?

2. What was the trainee's performance on the last five events which he completed?

3. What are the next five events the student must complete?

4. What events has the teacher candidate been required to repeat?

5. How long has it been since the trainee completed an event?

6. What events has the teacher candidate completed in the last thirty days?

7. What comments have been made about the trainee's performance?

It is clear that policy decisions will be required in terms of who will have access to a trainee's information base. Certainly the teacher candidate and his advisor will have this privilege, as well as the program administrator. Precautions will be taken so that the trainee can view only his own data. It will probably be advisable to permit no on-line changes of data. Changes should be made via authorized sheets only.

The data output for the program administrator will be quite straight-forward. He will receive weekly or semi-weekly reports which indicate what percentage of the trainees have completed each event. Reports will also indicate the absolute number of teacher candidates who have completed each event since the last reporting period. Projections will be made as to the number of trainees who will be working on each event in the next week and the next month. These projections can be correlated with the lists of available materials and resources in order to indicate the needs which will arise.

Batch-Mode Information Retrieval System. The output from the information retrieval system will often be in the form of specially prepared tapes which can be subjected to further analysis. For example, data from a particular test can be selected out and submitted to a conventional item analysis program which would indicate both summarized item data as well as summary data on the total test such as mean, standard deviation, and reliability. Likewise, observations and rating scales could be selected and analyzed. Some researchers will be interested in doing correlational analysis between, for example, such variables as background information and performance on technical skills. Appropriate data will be selected out and data matrices established. The data can then be submitted to conventional correlation, multiple-regression and factor analysis programs. Since such data retrieval will consume a great deal of computer time, they must be carefully considered and reviewed before they are executed.

IV. System Specifications

Hardware and Software Considerations

Software. It is perhaps advisable first to consider the software of programming requirements for the CMCS. There are at least two basic approaches to establishing the real-time management control system. The first is to utilize an already existing CAI operating system and impose certain functions which will permit one to create a data base from which data may be derived and to which data may be added. The advantage of this approach is that the operating system is already adapted to real-time operation. The problem would be to construct appropriate file structures which would be used for the PERT network and the associated list structures.

The second approach would be to implement an already existing PERT program, which operates in batch-mode, and to adapt it to time sharing, real-time interrogation. While such things as the list structures, the event listing and numbering, the up-dating functions, and the insertion of time parameters, would already be established, the problem would remain one of adapting it to the real-time operation. Since this approach could be utilized in batch-mode until the real-time mode became available, it is probably preferable to the CAI system conversion approach.

In order to produce the information for the program administrator as described earlier, certain of the available PERT routines could either be implemented as is, or modified to answer specific questions. This would be a relatively straight-forward programming task.

The software for the information retrieval system would consist of a series of disk and tape building routines, sort-merge routines, and select-delete routines. The first set of programs would be required to build the master background information tape. Then a sort-merge routine would be needed to continually add data to pre-assigned locations on the disks. When all data were collected for a particular event, they would be loaded onto tape for later analysis and the disk space made available for more incoming data. Select-delete routines would then be required to search the tapes for just those data which are required by the curriculum developer or researcher. This selection process would result in the building of a new tape which could then be analyzed by already available programs or specially prepared FORTRAN programs.

Hardware. The computer hardware which will be required to implement the total CMCS can not be considered in isolation, but rather in terms of what other uses might also be made of the computer in the training program; e.g., CAI instruction, other types of computer technology, and already existing software systems. It also should be noted that any college or university that attempted to implement this system would want to take advantage of already acquired equipment. Therefore, it seems advisable to describe only the general types of equipment which will be needed:

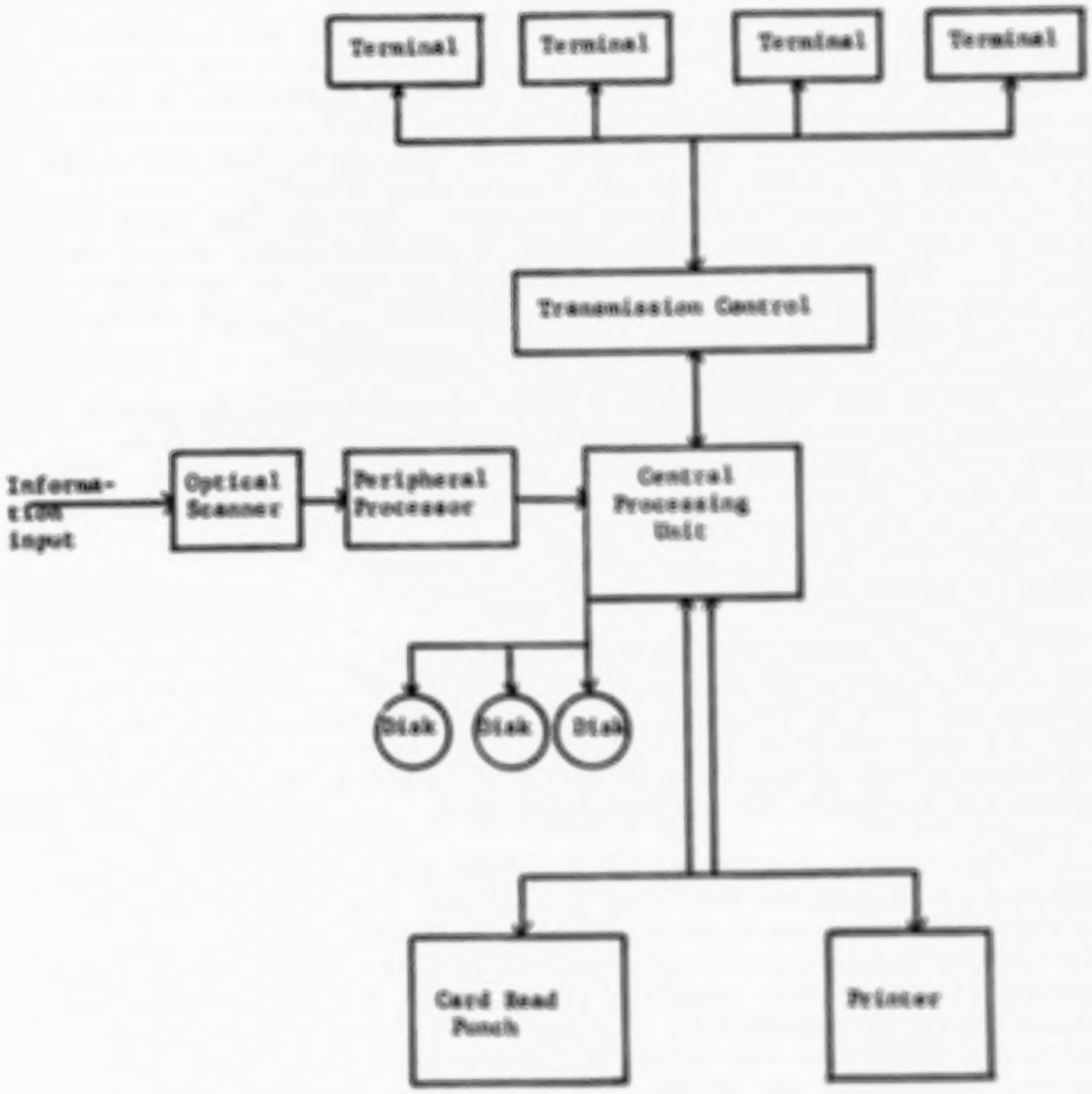
1. central processing unit;
2. transmission control device;
3. small peripheral processor;
4. random access disks;
5. card read/punch;
6. high speed printer;
7. remote terminals; and
8. optical scanner.

With this array of equipment, certain types of operational procedures could be implemented. A trainee's performance on a criterion task would be marked on a sheet which could be optically scanned. The sheet would contain the relevant information such as trainee and event number and data. The sheet would be placed in the optical scanner, read, and the information written directly on tape which could be read by the small peripheral processor. At this point the teacher candidate's performance would be condensed into a record for the PERT network and would be sent through the central processing unit to its proper location on a disk. It would then be ready for immediate retrieval. The small processor would also reformat the detailed information on the student's performance for inclusion in the research data bank.

A request for information from the real-time system would come from a terminal to the transmission control device of the central processing unit. A search would be made of the disks to retrieve the appropriate set of records which would be called into core. A series of application programs would then be responsive to further requests for information in the trainee's record. Such a system is shown schematically in Figure 11.

Personnel Requirements

It is likely that computer personnel who would be



POSSIBLE COMPUTER HARDWARE CONFIGURATION FOR CMS

FIGURE 11

involved in implementation of the CMCS would be part of the support staff for a computer which would also be used for other purposes. Therefore, the overall personnel requirements will not be as great as they would be if this were a dedicated system.

It is estimated that it would require approximately one year to design, implement, and check out the CMCS. It would require two full-time systems analysts, a full-time systems programmer, a full-time card puncher and coder, a part-time secretary, and the part-time services of a faculty member who was thoroughly familiar with the total teacher training project. During the last three months of the first year, a second coder would be added. The coder would be trained in the use of mark-sensing equipment, the optical scanner, the card reader, and terminal devices.

After the system has become operational, it would require the services of a full-time coder, one full-time programmer, and several part-time programmers. It is assumed that a computer operator would be supplied by the computer installation.

User Orientation

The program administrator must be aware of the continuous development of the CMCS and would be completely oriented to the expected output of the system. When the system becomes operational, he can evaluate the information and suggest revisions or additional information which might be of value to him.

The faculty must also be made aware of the development of the system and its projected usage. As sample output becomes available, members of the faculty will be asked to evaluate the information and the format, and to make additional suggestions. When the systems become completely operational, a special orientation session will be held for all advising personnel. At this session, they will be given the rationale for the system and be given an opportunity to sit at the terminal and ask questions of a hypothetical data base. They will also be provided with printed information about the system and its usage.

A special write-up describing the system will be made available to all incoming teacher candidates. They will be invited to visit the terminal room and, with the assistance of the coder, interrogate their own record.

After the trainee becomes involved in the training program, he will continue to interact with the system with the assistance of the advisor. Experience with CAI terminals seems to indicate that trainees have little difficulty learning to manipulate the terminals.

The curriculum developers and researchers will work with the computer programmer in the development of the information retrieval system and therefore will need no special orientation to the system. The important aspect with these users is to ensure that the data base is used effectively.

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CHAPTER IX

STAFFING THE PROGRAM

I. Introduction

The key to the success of any teacher education program is the faculty, and this is especially true in this model program. Many of the roles required in this program are new to professional teacher education, and the problem of retraining the faculty becomes a significant one. Similarly, the necessity to utilize interdisciplinary faculty teams to implement much of the proposed program introduces some additional complexities for staff organization. This chapter is addressed primarily to these two concerns: (1) the development of faculty members, with especial attention to ways of motivating them to be willing to change from their usual roles; and (2) overall staff organization that will insure the availability of faculty required by the stated training specifications. In addition, the chapter contains material on staff utilization within the model program.

II. Interdisciplinary Staffing

Inasmuch as this model program requires an interdisciplinary team for much of its realization, care will have to be taken in the assignment of faculty time and responsibility to the model program staff. Good will and informal arrangements will not be enough to bring about the kind of cooperation necessary. Some administrative understandings will need to be reached in order to insure the availability of qualified people at the point of need. The interdisciplinary approach specified here for the development of teaching behaviors contains the seeds of a formidable problem of organization and administration. By definition, to get an interdisciplinary contribution, staff members have to brought from a variety of disciplines. Most of the faculties from which personnel will need to be drawn have their own administrative units, and their interests tend to focus upon the development of specialists of their respective fields. Understandably, most staff members in these disciplines are not greatly interested in providing service in the form of course offerings to programs which draw on their disciplines. Therein lies a dilemma; it relates especially to administrative organization and the university incentive system. The successful implementation of the model program requires that attention be given to both of these matters.

The model program, if perceived properly, may be able to deal with the incentive problem. Actually, much of the theory on which the model program is postulated has been only partially tested, and the potential for research inherent in the model is unlimited. Efforts to relate developmental work on the elementary model program to the demands of the university incentive system should be initiated. Many faculty members could meet their research obligations within the model program.

Administratively, the specifications stated in this document require an inter-departmental model program unit, headed by a director. Administrative organizations for the model will be designed to accomplish two major objectives:

1. to insure the availability of staff members for planning, teaching, and evaluating at the point of need; and
2. to provide the framework whereby faculty members will have adequate identification with the model to develop commitment to it.

Obviously, many policy decisions relating to planning, teaching, and evaluation will need to be made as the program is implemented. It would be unfortunate if these were made entirely by persons whose only interests were in the preparation of elementary teachers. This would not provide as broad a base of knowledge and experience in the decision-making as is desirable. It would be just as unfortunate if people who have only marginal interest in, and information about, the model program had undue power over such policy decisions. The organization of the staff should provide assurance that all faculty members directly concerned with the implementation of the model will be available when important decisions need to be made, and that they will be well enough informed to participate wisely in decision-making. This can be done by identifying the required university faculty members whose appointments are outside an elementary education faculty and extending joint appointments to them. This will make them responsible to two administrative divisions for service: their basic department and the model program unit. They will carry full professional responsibility in each. Such an organizational arrangement will also maximize the possibliity that those faculty members not giving full time to the elementary model program will still identify with and be committed to it. They will be given appropriate faculty voting privileges in the elementary model unit; they will have office space and secretarial service in that unit; they will have access to graduate assistants available in that unit; and they will be encouraged to do research and writing on problems relating to the model program.

The director of the model program will have two responsibilities. First, he will be involved in any decisions in the university which affect the model program. If there are services needed by the program which other departments or schools could provide, it will be appropriate for him to take the initiative in requesting them. Second, as director of the model program, he will be responsible for its implementation, including the assignment of faculty to tasks.

An organization such as that described here will assure the availability of persons when they are needed, will identify the essential faculty members with the program, and will involve them sufficiently in the total operation to gain their commitment to it. Authority and control will be centralized sufficiently to provice unity, but it will not be so centralized as to result in stagnation.

III. Staff Development

All staff members will need some retraining, because the functions they will be called upon to perform will be different from those they have been performing. All faculty members will have somewhat new roles. Business as usual will not be possible. All personnel will have one thing in common; no one will be widely experienced in what he will be called upon to do. The situation will be most fluid and thereby open to both dangers and opportunities. The importance of helping each faculty member to become involved in this new approach to teacher preparation in ways that enable him to perform in a manner acceptable to him will be recognized as of high order. Efforts will need to be made to deal with the personal insecurities involved in radical change.

An examination of the model program specifications will reveal the competencies which the faculty will need to implement it. An inventory of the kinds of competencies possessed by faculty members upon whom the model program must draw will indicate the human resources available for implementing these specifications. The differences between the resources available and the competencies needed prescribe the dimensions of the faculty development program.

As indicated before, faculty members will need to learn to work with one another in ways in which they are not accustomed. Also, the knowledge and skills possessed by most staff members will not be adequate to provide the kinds of experiences specified in the model. This is not to say that faculties are generally poorly prepared. It is to say that they have not been prepared to carry out the specific tasks which the implementation of this model requires.

It becomes very important for faculty members to be able to demonstrate and to teach the teaching behaviors prescribed by the model. As noted earlier, the behaviors which trainees will be expected to learn are in four clusters: stating objectives, selecting and organizing subject matter, using strategies, and evaluating instruction. In order for faculty members to be able to help trainees to develop the behaviors that are specified for each of these clusters, it will be necessary for the staff to have some experience of their own with them.

To accomplish this, all faculty members will rotate through a series of workshop sessions to get an overview of the teaching behaviors specified for development in the model. Then, the faculty will be selectively re-grouped so that each member will study in depth one of the clusters of teaching behavior. This will be of fundamental importance in the staff development program, and will, therefore, require considerable time. When finished, each faculty member will be something of a specialist in one of the areas of teaching behavior prescribed by the model, and generally competent with them all.

After this attention to the teaching behaviors specified in the model, the faculty will be organized into work groups to help them to develop understanding of and skill with the training tools and techniques which are necessary in implementing the model program. These include micro-teaching, simulation, observation techniques, programmed instruction, use of multi-media, and individually prescribed instruction. This portion of staff development will also involve two phases: (1) an orientation phase, and (2) an in-depth phase.

As before, during the orientation phase, small groups will rotate, in workshop sections, from one to the other of each of the tools and techniques. Through these workshops, all will be restructured. Each faculty member will choose one tool or technique for study in depth. This operation should provide a core of specialists for each one of these tools and techniques.

It may be that in the process of engaging in these workshop experiences it will become apparent that the group skills of the faculty involved are not sufficiently well-developed to make communication as easy and as effective as it must be. If this situation arises, it will be necessary to give specific attention to staff development experiences aimed at improving ability to work together. Such an effort would help to open channels of communication within the group and would serve to reduce any feelings of insecurity that might be attendant to the need for working hard at understanding one's colleagues, while attempting rather fundamental change in one's own skills.

A deviation from the above plan will be necessary for staff associates. As indicated in the chapter on the in-service phase of the model, these are public school teachers who hold joint appointments with the university and cooperating public schools. Their major functions will be to help with the field work part of the in-service phase of the model program. The training program for staff associates will be held during two succeeding summers. In the first summer they will work together as a seminar group during the first six weeks of the session coming to as complete an understanding of the teaching behaviors which the model program specifies or training goals as that amount of time will allow. They will also be introduced to such tools and techniques as micro-teaching, simulation, interaction analysis, and individually prescribed instruction during the same six weeks. The same university staff will provide this training as was used previously to train the regular university faculty. Thus, as these staff associates begin their initial year of work in the field with first year in-service trainees from the model program, they will have a sufficient grasp of the nature of the teaching behaviors the trainees have begun to develop to be able to assist them in their refinement and extension. They will also understand enough of the new tools and techniques used for training to be able to work along with university faculty during the year to utilize them.

After the first year of field work has been completed, these staff associates will return to the campus for a second summer. Again the first six weeks of it will be given over to the development of a more complete grasp of the teaching behaviors central to the program, and to additional tools and techniques for working with trainees. At the beginning of the second year of field work the staff associates should be well informed about the training goals of the program and skilled in a range of procedures for working with trainees.

It will be noted that the faculty development program described to this point uses the direct approach to the improvement of faculty knowledge and skills. Admittedly, this approach involves certain recognized dangers. The implied suggestion that experienced faculty members with advanced degrees need further education could cause resentment. However, if seen as the inevitable re-tooling required by advances in teacher education, it is assumed that it will not.

The possibilities for faculty learning through an indirect approach should not be overlooked. Doubtless, a university faculty can learn much by being involved in the process of planning and improving a program for teacher trainees. Buried in this process are great potentialities for faculty development. The indirect way in which this learning is accomplished should not be permitted to obscure the importance of the results. One clear advantage of an indirect approach is that, with the focus on the examination of an educational program, those involved are less conscious of and perhaps more accepting of the learning that may result from the process. In order for the indirect approach to faculty development to be effective, plans need to be made to that end. The way the faculty is organized and the process used to (1) plan the details of the model program, (2) to implement it; and (3) to improve it as a result of research and feedback, will take this important secondary objective of personnel development into account.

IV. Utilization of Staff

Insofar as possible, the areas which faculty members choose to pursue in depth in the seminars and workshops conducted as a part of the staff development program will parallel their faculty assignments. Even so, it must be recognized that even after the in-depth seminars, some faculty members will be left more highly specialized than others. Those who are highly specialized will be expected to function primarily in that role; the generalists will serve more in a coordinating role. An effort will be made to create situations which will require each faculty member to function as a specialist at times and as a generalist at other times. This plan will make for the development of a more global point of view on the part of greater numbers of faculty members, and will place each in a favorable position to learn from others.

As visualized in this model, faculty members will have assignments of three major types:

1. administration-student personnel;

2. teaching-counseling; and

3. selecting and producing materials.

It is expected that during the course of an academic year each faculty member will work in two types of assignments. Specifically, each faculty member will serve as a teacher-counselor and as either an administrator-student personnel worker or a selector-producer of materials. During the academic year, many faculty members will spend most of their time in teaching-counseling. Normally pre-service trainees will not be engaged in study during the summer term, and in-service trainees who will be returning to campus will require the time of only a portion of the faculty. The summer term will, therefore, be the time when the faculty can work intensively on the other two types of assignments as described below. It will take maximum year round appointments to implement this plan.

One type of assignment will be as an administrator-student personnel worker. This will include scheduling training activities, allocating and scheduling staff time, admitting and screening trainees, and assigning rooms and equipment. The managerial aspects of the model program are tremendous and the director of the model program unit will need the assistance of persons in this assignment.

A second type of assignment will be as a producer-selector of tools, instruments and materials for use in teaching the trainees. The responsibilities of the producers will be particularly heavy in the developmental stages of the program and will be substantial throughout the demonstration period and beyond. For instance, in the admission program, available standardized tests will be used initially to measure entry skills, but later more relevant ones must be developed locally. Simulated materials that have been developed elsewhere will be used initially to teach certain concepts and skills, but later materials pointed specifically to the behaviors specified in this model must be developed locally. Efforts will be made to determine the effects on pupils of the teacher behaviors being developed, and instruments for this purpose that will be more clearly related to the goals of the model than are standaradized tests can be developed locally.

The third and perhaps the most important type of assignment will relate to teaching-counseling. As already indicated, practically all faculty will be teacher-counselors at some point in the program. As teachers, they will be responsible for planning and monitoring the experiences of trainees while they learn to state pupil objectives in behavioral terms, to select and organize materials of instruction, to use an array of teaching strategies, and to evaluate pupil learning in terms of behavioral changes. It is anticipated that at any one time some trainees will be working on each of these teaching behaviors. If this proves to be the case, this staff arrangement will provide two advantages. First, faculty members can teach in areas where their strengths are greatest; and second, each trainee can move to another behavior when he has demonstrated an acceptable level of performance on the one on which he is working. As visualized, teaching professors will operate on interdisciplinary teams, particularly in the synthesis phase of the pre-service program when the skills and talents of many persons working together will be required.

Most of the teaching professors will also have some counseling responsibilities. As soon as the trainee has been admitted to the program, he will be assigned to a teaching-counseling professor. It will be the joint responsibility of this teaching-counseling professor and the trainee to plan a specific program for movement through the prescribed behaviors and to make decisions from time to time regarding next steps along the way. This process will be facilitated by periodically retrieving data stored in the computer for use by the trainee and his teaching-counseling professor.